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The Arcade Railway.

THE illustrations which we present this week give so clear and intelligible a picture of the proposed Arcade Railway, and the process of its construction, as scarcely to require explanation in words. It will easily be seen that this is neither a surface nor an underground railway, but a device which combines the chief advantages, and is singularly free from the chief drawbacks, of both. Surface railways, for instance, are recommended by their more perfect ventilation, and by the greater comfort and pleasure of passengers, in the ability to see something from the windows. For purposes of through transit from business New York to residence New York, however, they are to be condemned on account of the great objections against the use of steam-locomotives in the city streets, and, perhaps they can have it on any of a dozen horse-railways now in operation! The question of cost in construction concerns not merely the capitalist, but also the public; since a vast original outlay necessitates high fares. It is therefore not a sufficient answer to the many objections urged against a tunnel road, (or "sub-way," as it is ingeniously called by its friends) to point out methods of possible engineering, by which this or that inconvenience, danger or difficulty may be overcome. As M. MCALPINE well remarked before the Legislative Committee, "the engineer is accustomed to say that nothing is impossible." But that kind of engineering which seeks difficulties in order to surmount them, the world has outgrown. Little boys with new boots will go out of their way to splash through puddles; wise men will go out of their way to avoid them.

fore presented—a popularity, we admit, owing in part to the untiring energy and skillful management of its projector, MELVILLE C. SMITH; but these, of course, could have availed little but for the superior merits of the project itself.

The arcade railway combines, as we have said, the chief advantages of the other plans, and is free from their chief defects. We propose to enumerate the features which, in our opinion, recommend the plan, and then, as fairly as possible, notice the difficulties involved and the objections which may be urged.

THE PLAN.

The following brief statement of the plan may serve as a text for our remarks: This is an under-surface railway, which contemplates the use of the entire width of the streets and avenues under which it passes, exclusive of the five feet of area allotted

THE PROPOSED NEW YORK ARCADE RAILWAY—(VIEW FROM NEAR WALL STREET, LOOKING UP BROADWAY.)

still more decidedly, because the construction of even one such railway (to say nothing of the seven or eight recommended by one of the daily journals) would still further embarrass the already over-burdened avenues of down-town traffic and passage. Underground railways, on the other hand, while free from this objection, and capable of being operated with speed and safety, must always be liable to objection as a means of passenger transit. Tunnels ought to be the last resort of the railway engineer. Short ones afford a pleasurable, because brief, terror to women and children; but the experienced traveller considers them nuisances in the exact proportion of their length. In ventilation, also, they are of course deficient. It is true that an investigation has shown the air in the tunnels of the London Metropolitan road to be no worse than that in many crowded places of resort, and not perceptibly injurious to healthy persons; but this is faint praise, and the fact that many persons find it uncomfortable is not denied. Besides, that road is ventilated with open cuts, amounting in the aggregate to one-fourth of its whole length. In passing through these cuts, the steam is generated which supplies the power for the transit of the tunnels. The air in the Metropolitan tunnels, therefore, even if it were better than it is, could not be taken as evidence of the ease and completeness of ventilation for a continuous excavation of several miles, in which the atmosphere will be vitiated, not only by the action of human lungs, but also by the conditions which necessarily pertain to a tunnel structure. The suggestion of stationary engines is not a practical one. It involves much cost and trouble, and excludes the high speed which forms one of the chief necessities of the case. If people want a slow ride, goodness knows

Elevated railways have no advantages at all, except their non-interference with the business of the street below. Even this is but partially accomplished; for, strictly considered, the noise of passing trains on iron frame-work, and the obstruction of light by the same cause, are interferences with business. Stores upon the level of the sidewalk are seriously injured; and there is no enhanced value given by way of compensation to the second stories, unless the trains stop all the way along, like omnibusses or horse-cars—in which case nobody wants them.

The history of the numerous schemes which have been laid before the authorities of this city and State, with the avowed purpose of satisfying the growing (and already imperative) necessity for swift longitudinal transit on Manhattan island, indicates pretty clearly the progress of knowledge on the subject among our people. Each plan in turn has been vehemently discussed, and pressed upon legislative attention with all the logic and eloquence that could be enlisted in its favor—too frequently, also, we fear, with other and less reputable assistance. Yet one after another they have failed. The only ones now deserving serious consideration are the elevated railway in Greenwich street, which seems to be slowly making progress; but which, if it should be a success, would be but a drop in the bucket of our necessity; the central under-ground tunnel road, the managers of which appear to have so exhausted themselves in obtaining authority to build it that they have no strength left for the work itself; and the plan we are now considering, which has steadily grown in the favor of the public generally, of business men, and of the most competent engineers, until it has become by far more popular than any other plan hereto-

to each building, thus securing one desideratum—capacity. A mere tunnel could not do this. The excavation being made to the line of areas, the sidewalks and roadway are replaced on groined arches of solid masonry, springing from heavy iron columns, which rest upon secure foundations, the masonry of the arches being rendered water tight by an impervious asphaltum coating. Upon this is formed a road-bed of dry sand, rammed and rounded to receive a pavement which will never be disturbed for any purpose whatever, until it requires to be renewed when entirely worn out. The water-pipes, gas-pipes, sewers, telegraph wires, hydrants, lamp-posts, and all other matters of public necessity connected with street thoroughfares, are provided for in the design in a more complete, convenient, accessible, and systematic manner than they are at present arranged, and the Broadway which, step by step, is thus renovated and restored to the city, relieved of many incumbrances, and of more than half the present crush of travel, both in vehicles and pedestrians, will exceed in beauty and completeness any commercial avenue of the world—the value of property enhanced, and the facilities of business increased to an extent which cannot be attained by any other conceivable process. The whole length of the arcade thus constructed as lighted and ventilated from the open area adjoining the buildings, by means of which, also, free and ready ingress and egress is afforded to the arcade at all points of the route, thus securing the essential condition—convenience. Many of the finest buildings on Broadway and Maiden lane, for instance, have been constructed on this plan, to secure light to the basements; at the same time aading materially to the appearance of the sidewalk. The sidewalks of the arcade correspond with the sidewalks of the streets, and under the street are laid four

non-interference with the business of the streets below. Even lines of railway, two for rapid transit and two for way passengers, thus securing capacity and rapidity. The road-bed being solid, and each track appropriated for specific uses, and entirely unobstructed, secures the important condition of safety. Having thus fulfilled the four imperious conditions required, let us examine what other results are attained.

The lower or basement stories of the buildings along the route are opened upon a broad, well-lighted street, and can be used for all the purposes to which the first floor is adapted, or any purpose of trade or manufacture, making, therefore, just as many new places of business as there are buildings along the line. At each street crossing vaulted transepts are constructed, which, while increasing the facilities of ventilation, add so much new space for commercial storage, markets, or other purposes, and where the route adjoins a public square, the whole of the line for that extent can be used in like manner. The cars being always under a covered way, are never exposed to the weather, and can be constructed upon principles of thorough ventilation. They will never be either as cold in winter or as hot in summer as the cars on surface railways, and for that reason will be largely conducive of public health They need never be crowded, for there is no limit to the power of locomotion or the number of cars. In the work of construction, the foundations of the houses are not approached, and will not be disturbed. Whenever any portion of the coal vaults are taken, additional room of equal value and capacity will be constructed, at the expense of the company, beneath the lower sidewalks. The surface water would descend to the sewers through the hollow iron columns of the arcade. The columns under the roadway are twenty-two feet apart; those under the sidewalk are eleven feet apart; and this portion being thus more compact, forms, as it were, a buttress for the main arch of the surface of the roadway. The telegraph wires, and a pneumatic tube for postal purposes, as well as the sewers, gas and water pipes, may all be so arranged as to be always accessible at any point without the necessity of removing any material, which forms at present so large an item of expense in all repairs to these conduits. The open area-ways, with the addition of dead lights in the sidewalks (if necessary), would afford perfect daylight to the street and stores below. The routes selected for the road are the line of Broadway from the Battery to its intersection with Ninth avenue, thence to the Hudson river; also branching at Union Square, and following the line of Fourth avenue to the Harlem river. It is conceived that this last connection, which, in consequence of the great width of the Fourth avenue, will allow in that avenue six tracks, will provide for the conveying of all the great northerly and easterly routes of railway into one great central depot, which, in connection, at no distant day, with a viaduct over the Hudson at Fourteenth street, will constitute a point from which will radiate all the lines of railway travel which concentrate here from the North, South, East, and West. The excavation and construction may be begun and carried on at many points along the route at the same time. Temporary and movable bridges will prevent any obstruction to travel during the progress of the work.

ADVANTAGES.

1. This scheme offers greater relief than any other. By taking the whole width of Broadway, and laying four tracks, it secures double the capacity of any other proposed plan. It solves the problem of the co-existence of way transit, through transit and freight transit, by assigning to each adequate accommodations and a separate place or time.

2. This relief is secured in the most beneficial manner. To lighten the burdens of Broadway by drawing away to some other street the crowds of pedestrians and vehicles that now encumber it, would be to inflict upon the owners of Broadway property an irreparable injury. The crowds in Broadway are its glory and its value; nobody wishes to be seduced into travelling by another street; but the man who is going far up-town is impatient of the hindrances and delays occasioned by the multitude going down-town, or lounging along on foot or in omnibuses, and the heavy carts and wagons which persistently select this street, because it is central and direct, or because they are loaded with goods for the vast wholesale and retail traffic which it sustains. Now the people like Broadway, and the more there are who walk or travel there, the more there will be who prefer it to less fashionable thoroughfares. The goods must be taken where the customers are; and the "relief" afforded to Broadway must not consist in the destruction of its facilities for business and pleasure, any more than of its magnificent buildings, its sidewalks, or its roadway.

3. In the execution of this plan, private property will be enhanced, rather than diminished, in value. An elevated railway makes a basement of the first story; the arcade makes a first story of the basement. It is well known that the Greenwich street road is exposed to heavy claims for damages from property-owners on that street; and the same liability would render an elevated road in Broadway positively impracticable. Now it is evident that the Arcade system would greatly add to the value and increase the rental of Broadway property. Moreover, the public necessity demands something in the way of additional conveniences of travel; and the property-owners on Broadway cannot hope to maintain unaltered the present state of things. If they must accept something, they cannot fail to prefer that plan which will incommode them least, and add most to their facilities for business.

4. The route to be followed by this railway is topographically the most convenient, as it lies along the central ridge of the island, and in the construction of the arcade the basements already existing in the great majority of buildings (indeed, in all the modern and valuable buildings) would greatly facilitate the work. A walk through Broadway will convince any one that it is virtually almost arcaded already, as far as the space beneath the sidewalk is concerned. In this respect, the proposed construction amounts merely to illuminating and beautifying the present coal and rubbish vaults. When such vaults are appropriated for the use of the company and the accommodation of the public, new ones would be constructed by the company below them.

5. The only property which could be disturbed by the construction of the arcade railway would be the public property at the terminus and in the street itself. The second illustration which we give this week shows a perfectly simple and feasible method of excavation and construction, by the use of which even the temporary interruption of traffic is avoided.

6. Engineers of the highest reputation and widest experience, such as McALPINE, VIELE, STUART, McCLELLAN, QUINBY, and others, vouch for the practicability and comparative economy of this plan. Every mining engineer, in particular, knows how much more feasible it is than a tunnel would be; while the difficulties which environ the plan of a tunnel in this particular locality, interfering with the sewage and water system of the metropolis, are simplified or entirely avoided by this plan. There is, in fact, no doubt that the arcade railway would leave these subterranean conduits in better location and condition—more safe, reliable, effectual, and accessible—than it found them.

7. As compared with a surface road, the protection against snow and ice, and the interruption of travel which these agencies cause every winter in our streets, would be an enormous advantage. This evil is one of the most serious that afflict citizens dwelling far up-town, or in the suburbs, and forced to pass over the ordinary horse-railways to their places of business during the winter months.

8. Having the same gauge as the steam-railways entering New York City, this road could bring freight to the very doors of our merchants without unloading and carting it. The cartage of goods across the city frequently costs, under the present state of things, more than the whole freight from Albany, or even Buffalo. Our system of cartage is a clumsy relic of the days of the Dutchmen. It is behind almost everything else in our municipal arrangements, and notoriously inadequate to our needs. There is no more vexatious element in the crowd that oppresses Broadway, than the innumerable drays—bulky and slow—that impede the progress of lighter vehicles, and frequently block the street for long distances and considerable periods of time. A device that does not reduce the number of drays in Broadway may accommodate passengers by drawing them away to some other route; but it will merely surrender Broadway, not deliver it.

9. It is claimed in behalf of this plan that American capitalists, convinced of its merits and practicability, stand ready to undertake it and carry it out. This is notoriously not the case with some other places, which appear to have been hawked about the markets of Europe without finding the solid support of moneyed men. Some of these schemes have had the opportunity of many months; but as they do not appear to have hatched after all this incubation, the fair inference is that they are addled. If that is the case, the sooner fresh eggs and another "setting" hen are put in the nest, the better for all concerned. A tunnel-road would be an inferior accommodation even if successfully completed; but a tunnel existing only in an act of the Legislature, is worse yet. It accommodates nobody, while it prevents the execution of any other work in its place. With the light we now have, we see no reason for extending again the time within which the tunnel was to begin, and we think the public would be strongly in favor of giving some more promising plan a chance.

10. One important point which the arcade has is the permanence which its construction would give to the pavement of Broadway. The arcade plan, giving complete accessibility to gas, water and drainage pipes, would remove forever the necessity of tearing up the pavement for repairs of these conduits. This of itself is very important, especially if pavements like the Nicolson are to come into use; since the breaking up of these, when they are once consolidated, is an unmitigated nuisance, and an injury to the roadway. But we now refer more particularly to the additional firmness and permanence to be imparted by arches of masonry to the superincumbent pavement. Engineers know very well that a road, no matter with what art constructed, is no better than its foundation. The Roman roads, which have endured in many parts of Europe to this day, are magnificent illustrations of this fact. The streets of Pompeii, though they show deep ruts worn in the stone, do not show pit-holes and cavings-in here and there, such as disfigure many New York streets. It is useless to tinker the tops of streets if the bottoms keep falling out. Now, the support of the Broadway pavement on arches of masonry renders these local depressions impossible, and gives the whole a durability only limited by the actual wearing away of the surface. And who ever saw a pavement worn out thoroughly in that way? A pavement that could be depended upon to stick together, like the "one-horse shay," till its last day came, would outlast many of our present contrivances, just as boots that fit so neatly and are worn so equally as not to run down at the heel nor burst out at the toe, give their wearers in many a month of faithful service, the full worth of their money. To secure this highly desirable result, two things above all are necessary. The first is, that we should give the roadway a support which would distribute the local pressures, and the second is, that we should not keep tearing up the pavement after it is down. These conditions are admirably fulfilled by the plan of an arcade railway.

We might continue to enumerate the advantages of this plan. There are many which we have not mentioned, because they are such as would suggest themselves to every one considering the subject. For a similar reason, we have not wasted words to argue the necessity of some such device for the relief of our overburdened streets. Half a million citizens testify daily to this necessity; and the matter is beyond argument. Let us have the arcade railway.

New Leaching and Chlorination Process for Silver Ores.

BY GUIDO KÜSTEL.

I.

LEACHING and chlorination are two different processes, not applied heretofore to silver ores in the manner or combination here described.

THE LEACHING PROCESS.

Leaching of silver ores is by no means a new invention. AUGUSTIN, PATERA and ZIERVOGEL have employed it in their respective processes. Neither of these three processes, however, was ever successfully introduced in the United States. The pan amalgamation, in consideration of its undisputed advantages in many respects, remained master of the field. The pan amalgamation is divided into two distinct methods, one including, and the other excluding, the preliminary roasting of the ores. The question of the best results from the direct amalgamation of raw, unroasted ore, is still a matter of diligent investigation. In the treatment of the Comstock silver ore (its contents in gold being left out of question) less than sixty per cent. of silver is in most cases extracted by the present pan amalgamation. Other kinds of ores of a refractory nature yield a still smaller per centage, if amalgamated directly in pans. Hence the numerous investigations and experiments, in spite of which, since the beginning of the pan amalgamation—that is to say, after nearly ten years spent in crushing millions of tons of silver ores, though the inventive genius of numerous most skilful mill-men has been concentrated on the attempt to discover a better way of treating silver ores without roasting—not one single chemical has yet been found to operate more effectively for the decomposition of sulphurets, than the old Mexican "*magistral*" or blue-stone (copper vitriol) and salt, which amounts to the same thing as "chloride of copper." The reason of the persevering attempts to discover a "chemical" is of course the desire to avoid the expense of roasting. This same consideration prevailed for hundreds of years also in Europe. No chemical was discovered there either. There appears, therefore, to be no very great risk in predicting, that after the lapse of another decade the amalgamation of unroasted ores in pans will be found about on the same footing as it is at present. All that can be expected are periodical excitements over some new inventions, which will prove to be old, and die out again, as did the late "amalgamation by means of electricity."

The only real meritorious progress in treating raw stuff in pans is that adapted by Messrs. LOUIS and HENRY JANIN, which consists simply in the administration of a larger percentage of blue vitriol. The practical proof, however, is confined as yet to the "slums" or "slimes" of the Comstock ore, from which, by this means, over eighty per cent. of the silver has been extracted. But if silver ores of the same class as those from which the slimes were obtained, should be treated with, say one per cent. of blue-stone, the resulting amalgam would contain too much copper for practical economical results.

The use of blue-stone and salt involves, first, the formation of chloride of copper, which is reduced in presence of quicksilver into sub-chloride of copper; and by this the greater part of the silver sulphurets is decomposed. But this process does not always give the expected results, as there are many silver combinations which resist the action of the blue stone entirely. Especially is this the case with argentiferous zincblende, plumbiferous ore, some kinds of argentiferous copper ores, etc. Carboniferous silver ores, and such as contain the silver in oxidized condition (for instance, stetfeldite or partzite) seem to yield a larger percentage of silver (70 to 75 per cent.) if treated directly in pans by amalgamation with the aid of blue-stone and salt (or sulphuric acid and salt, provided there is copper oxide in the ore). In many cases, however, there is still trouble on account of too much copper getting into the amalgam.

Another ingredient applied to raw ore in pans is the cyanide of potassium. This chemical keeps the surface of the quicksilver clean, and this is its most valuable property; for, as a decomposer of sulphurets, at least in pans, it is inferior to the chloride of copper. Where other chemicals are used, the cyanide should be introduced at the end of amalgamation, in order to assist the gathering of the quicksilver globules into a mass. If used together with blue-stone and salt, there is not the slightest benefit derived from the cyanide, as it forms immediately a combination with the copper.

As there are no soluble metallic salts in raw ore, *leaching* is only applicable after *roasting*. For eight or nine years past, refractory silver ores have been roasted and amalgamated in pans, with variable success. The most satisfactory results have been obtained, where the mill-men were lucky enough to treat such ore as contained only a small per centage of base metals; but a series of difficulties was encountered in operating on ores presenting a considerable amount of antimony, copper, lead or arsenic, and in working tailings which required roasting. It was found that the pan amalgamation, like that in wooden barrels, but in a still greater degree, produces, under such circumstances, a very low bullion, from 300 to 500 fine. This, however, is not all; the loss of quicksilver in some cases amounts to from eight to nine pounds per ton of ore; and the pans themselves were destroyed in from nine to twelve months, so that many mills in the Reese river country, for instance, used wooden sides to the pans on this account. As a natural consequence of the amalgamation of so much base metal, the extraction of silver was greatly obstructed, and a smaller per centage of silver was obtained. Another and more serious difficulty with some kinds of refractory ore, was the disproportionate amount of iron which came into the amalgam. In such cases, after several experiments, roasting and amalgamation in

pans was generally given up, as it was impossible to separate the iron from the silver in a simple way. Such amalgam contained from thirty to eighty per cent. of iron after retorting. By some mill-men it was pulverized and subjected to a second amalgamation, from which clean amalgam resulted. Others dissolved the iron in diluted sulphuric acid, leaving the silver ready to be melted into a bar. The retorted amalgam was also introduced into crucibles and melted; but only a part of the silver separated, leaving lumps of rich metallic iron which could not be brought into a liquid state. It is not explained as yet under what peculiar circumstances this iron amalgam is formed, nor is it possible to point out with certainty the ores which are liable to yield such amalgam. I have observed only that antimony and arsenic, besides some copper, are always present when iron amalgam is formed, but it does not follow that this amalgam is always obtained from ores containing the above base metals. Many mills treating refractory ores suffered severely by the appearance of iron amalgam, but the general influence of the base metals, as mentioned before, was more sensible.

It is strange that, simple as is the remedy against the unwelcome interference of base metals, so many years of operation were allowed to pass by without making use of it. It was the dogma of all metallurgists, that in order to make base metals less injurious during amalgamation in barrrels or pans, their respective chlorides had to be destroyed during roasting, either by an increased heat or by the addition of lime or ashes. Super-heated steam was also applied for the purpose of destroying the salts of the base metals. But none of these devices for the elimination of the base chlorides were satisfactory. It was known that most of those chlorides are, as the chloride of silver is not, soluble in water. These facts led me to the conclusion that, instead of increasing the heat and lengthening the roasting process for many hours, and thus effecting only a part of the desired result, it were more simple and thoroughly efficacious to remove the soluble chlorides of base metals, after roasting and before amalgamation, by leaching with hot or cold water. My first experiment with this method in practice was made in San Francisco, on the ore of the Rising Star Mine, of Flint District, Idaho. Of a well mixed and roasted lot, two portions, each of fifty pounds, were weighed out and amalgamated in pans, one portion having been previously leached. The resulting amalgam was retorted and melted. The bar of the leached ore had a fineness of 900, while the other formed a clumsy lump of metallic iron containing silver.

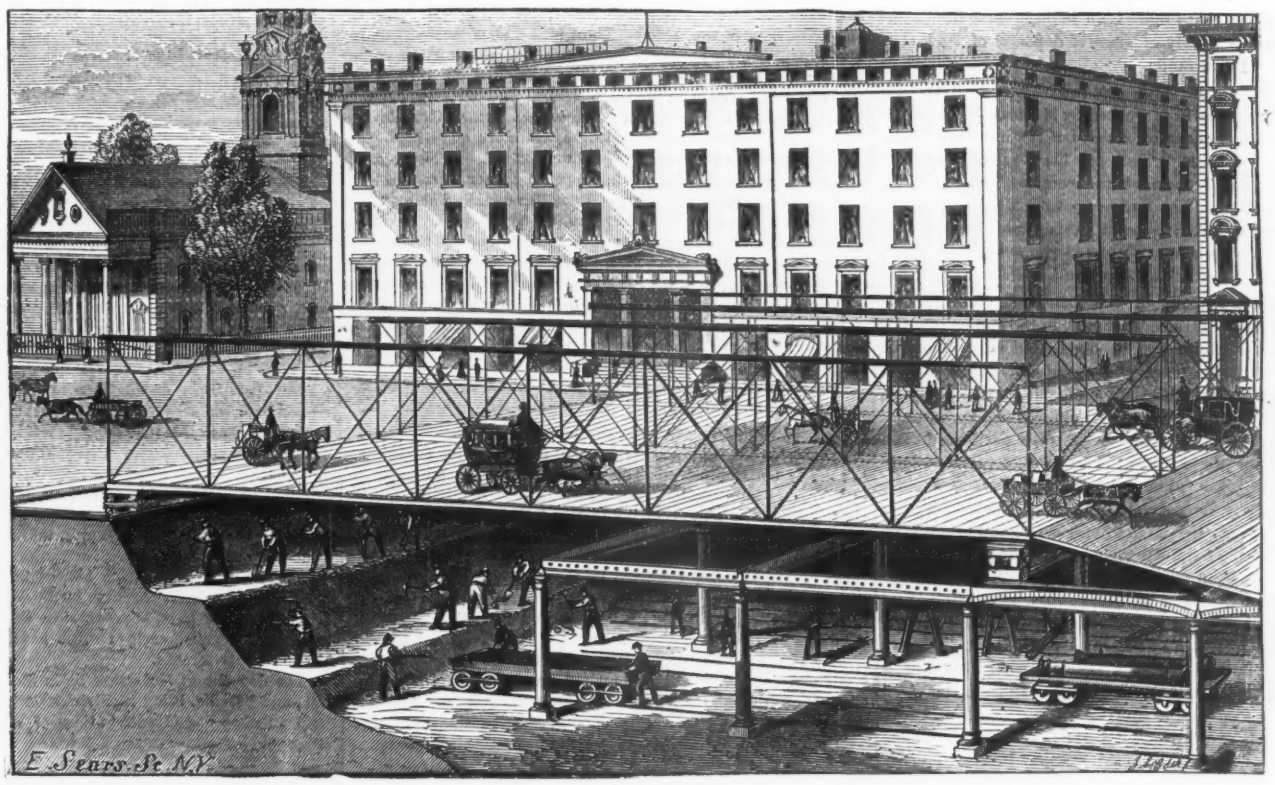
There is certainly another way yet, not only to obviate the iron amalgam, but also to obtain a cleaner bullion, without leaching. This is, to grind the roasted ore in iron pans or otherwise, and to amalgamate it in wooden tubs, barrels or stone arastras, keeping all iron or copper out of the amalgamators. The consumption of quicksilver will be very heavy, and the yield of silver undoubtedly less than when the ore is amalgamated in iron pans after leaching.

The *leaching process*, as executed in Flint with the silver ores from the Rising Star Mine, (now stopped for want of ore) is as follows: The Rising Star ore is composed of argentiferous gray copper, rich in silver, miargyrite, some ruby silver, zinc blende, galena, iron pyrites and sulphide of antimony. After being reduced to powder by dry crushing in batteries with an addition of five per cent. of salt, or one hundred pounds to the ton, the ore is conveyed by means of endless screws and elevators to mechanical roasting furnaces (O'HARA's). Including the cooling and feeding hearth, the furnace is one hundred feet long by three feet wide. An endless chain, to which two iron flat rings with ploughs are attached, moves slowly through the furnace, pushing the ore by degrees forward at the rate in which the constant feeding from the batteries goes on. The furnace has three fire-places, by which its whole length is kept red hot. It is about six hours before the ore, in a glowing and well roasted condition, appears at the discharge end of the furnace. (About ten tons of this same kind of ore was roasted equally well in common roasting furnaces at DALL's Mill, Washoe Valley.)

Sampling of the Ore.—It is of great importance to ascertain the value of the ore before and after roasting. The first forms the basis of all calculations of loss. The difference between the values of the unroasted and the roasted ore gives the loss sustained in roasting, provided the weight of the ore does not change, as is the case with the Rising Star ore. The value of the bullion obtained from a known number of tons, compared with the assay value of the same amount of tons, shows what per centage of silver was saved by the process. The "argumentum ad hominem," that is, the bar in hand, is the only real proof of success. The comparison of other assays will demonstrate in what part of the manipulation the heaviest loss occurs. The knowledge of the value of tailings, after the amalgamation is finished, is very important, and should never be neglected. It is the daily indicator of metallurgical progress. The mode of taking samples for the assays is not immaterial. On its correctness depends the whole calculation. The best way of taking samples in raw amalgamation is to charge the pans with the ore and to take from each several ounces, after about two hours grinding, before the quicksilver is introduced. This however is not practicable with ore subjected to roasting. At Flint, every hour, day and night, by means of a little shovel, from different points of the hearth of each furnace on the feeding side, samples, amounting to one or two pounds, were taken from the raw ore, (containing five per cent. of salt) and in the same way also from the roasted ore on the discharge side. From these collected samples average samples were taken every morning and delivered to the assay office. From the amalgamating pans the ore and quicksilver is discharged into settlers, from which, after several hours, the tailings are drawn off, first through an upper, and then through a lower, plug hole. At each discharge a pailful was taken from the upper and another from the lower hole, and the slime allowed to settle for several hours. From the accumulation of twenty-four hours, in this manner, a true average was reserved once a day for an assay. This mode of taking tailing samples is not exactly the most proper. Mr. HENRY JANIN's way, though more troublesome, is also more correct. The tailing sample is not taken from the settler, but from the amalgamating pan, shortly before the discharge. A few ounces are very carefully washed over into a clean pan or dish, so as to retain all quicksilver and amalgam. From the washed off tailings the clear water is poured off, and the residue dried and assayed. For ores treated by the leaching process these tailing assays have, however, no value, on account of the sometimes great quantity of chlorides of iron, copper and other metals which are extracted by the leaching, unless this loss by leaching is ascertained first on a weighed sample by an experiment and the rectification made accordingly on the assay sample.

Examination of the roasted ore as to the amount of chloride of silver formed during the roasting: If ninety per cent. of silver are obtained from the amalgamation of the ore, as compared with the assay of the roasted ore, it is a proof of a thorough roasting, but it is no proof of the economy of the work. On the other hand, if only sixty or seventy per cent. should result, it is not easy to say where the fault is to be looked after. It may be due to the roasting or to the amalgamation. It is therefore important to know how much of the silver contained in the ore is converted into a chloride, and also when the chlorination is finished, otherwise the roasting might continue half an hour or an hour longer than necessary.

For the purpose of finding the amount of chloride of silver in the ore, it is sufficient to take two half-ounce assays of the roasted ore, well weighed, and one of them prepared in the usual way for a fire assay, while the other is placed in a carefully folded filter in a glass funnel. The filter must project over the ore about one inch; a warm dilute solution of hyposulphite of soda (more convenient than ammonia) is then poured over the ore, and the filtering is continued until no precipitate is obtained by adding a few drops of sulphide of sodium to the filtered liquid. Hot water is then introduced, in order to wash out the hyposulphite of soda, and the ore with the filter dried in a porcelain dish. The filter paper, when dry, can be burned above the dish, so as not to lose any of the ashes. The dried sample is then fluxed, as is the other half ounce, and both crucibles are exposed to a smelting heat. The resulting argentiferous lead buttons are cupelled, the silver buttons are weighed, and the difference shows the amount of chloride of silver. If there should be any sulphate of silver in the roasted ore, it would be included by this test as a chloride. It might be separated by using hot water before the hyposulphite of soda; but for practical purposes this is not necessary. To illustrate the calculation by an example, we may suppose, for instance, that No. 1 assayed 83 oz. per ton, and No. 2 from the filter 4 oz. The difference, 79 oz., is the proportion which became chloridized, or 95 per cent. of the 83 oz.



PLAN FOR BUILDING THE ARCADE WITHOUT INTERRUPTION TO TRAVEL.

Notes from Nuevo Leon, Mexico.

BY A. MEZGER, MINING ENGINEER.

I ENJOYED, last spring, the opportunity of making a few observations of a geognostic character in the State of Nuevo Leon, Mexico, a sketch of which I communicate herewith:

The region which I traversed was celebrated in early times for its mineral wealth, and under the rule of the Spaniards it was the scene of busy mining industry. The following brief description may serve in lieu of a map to acquaint the reader with its topography. The long and wide chain of the Sierra de la Guana, crossing the middle of the district in a nearly meridional line, presents as its central and principal summit, the massive mountain of the Minas Viejas (old mines), which rises to the height of more than three thousand feet above the neighboring valleys, and by reason of its peculiar intersections and natural and artificial exposures, affords the most satisfactory explanation and key to the geological phenomena of the region. East and west of this range are two others, nearly parallel. Almost the only rock formation observable in these north and south ranges is old alpine limestone, (Jura) in which I have found a Saurian and a Bellerophon, too much damaged, however, to permit the exact determination of their species. The stratification of this limestone is highly regular, even to the thickness of the individual layers. In a lime quarry of the neighborhood I found that, for a space, two hundred and fifty feet long by fifty to eighty feet broad, these layers do not vary in thickness so much as a half-inch. On the eastern flank of the Minas Viejas they dip eastward, and on the opposite side, westward, that range evidently forming an anticlinal axis. This may be clearly studied at many points along the base of the mountain, which, in its numerous ravines and cañons, affords everywhere complete cross-sections of the formation. A line of hills, separated from one another by gulches, and from the main range by a longitudinal valley, are so uniform in form and size as almost to seem the work of human hands. The larger range, to the east, is called Lomas de Vallecillo; that on the west, is the Sierra Veluto. Its continuation, south of an intervening valley, is the Sierra de Goma, and the Yguana chain likewise reappears to the southward as the Sierra de Cerrero. The average distance between these principal ranges is from twelve to twenty miles.

Upon the mountain of the same name, is found the outcrop of the long-celebrated vein of Minas Viejas, crossing the range

from east to west, and dipping north. This vein has been traced for three miles, and attains in places a width of forty feet. The vein-matter consists of about eighty per cent. carbonate of lead, fifteen per cent. red iron-ochre, and five per cent. galena. The carbonate contains about thirty ounces, and the galena sometimes two hundred ounces, of silver per ton. The old workings of the Spaniards, in the mines of Chihuahua and San Juan, west of the summit, must have been very extensive, judging from the imposing magnitude of the excavations now remaining in ruins; yet, strange to say, there are no dumps or burrows of refuse rock anywhere to be seen, which forces us to the conclusion that the vein in those mines produced throughout its wide extent *ore only!* The outcrop can be traced across the whole dome of the mountain by its beautifully developed "iron cap" or gossan.

Not far from Minas Viejas, and between it and Sierra Veluta, on the west, an isolated hill, the Sierra Colorado, rises to the height of four hundred feet, with a length of three miles and a width of three-quarters of a mile. This hill is intersected in all directions by veins of silver and lead ore. On the northeast declivity of the Sierra Veluta is a vein twelve feet wide, carrying copper-pyrites, copper-glance, malachite and azurite, in a garnetiferous gangue. The average contents in copper I estimate at about eight per cent., which could not be profitably increased by mechanical concentration, since the specific gravity of the garnet-rock is nearly or quite as high as that of the hydrous carbonates of copper, while the form of the latter insures their being lost in the water employed for concentration.

North of the Sierra Veluta, and northwest of the Sierra Colorado, rises the mountain of Carrizal, attracting the eye from afar by its striking outline. This mountain contains numerous large veins of iron ore. The character of this ore, however, corresponds so closely with that of the ferruginous outcrop of Minas Viejas, that I more than suspect these iron mines to be the coverings merely of massive deposits of lead ores, like those of the central range.

In the Sierra de Goma there are two lead and silver veins known, one of which has been worked by Mexicans. The ore is said to contain five per cent. of silver, but the mine was abandoned, because every hole drilled for blasting used up three drills, and the labor and expense of the work was considered too great. These stories do not hang very well together. Three drills to one hole is not considered among intelligent miners to be an excessive proportion, while five per cent. of silver is an enormous yield—nearly $2,000 per ton.

The mine of La Yguana, in the Lomas de Vallecillo, is celebrated in history. It once produced, in the course of a few months, the sum of $5,000,000 in silver; but it may now be considered as exhausted, since the recent operations at that point have been unprofitable. In Vallecillo, at the southern end of the Lomas, there is another vein-system, the mother-lode of which courses east and west, dips northward, and has been traced for three miles. The parallel veins contain partly (as does the principal one) galena, with coarsely crystalline calc spar, partly ferruginous quartz and ochreous iron ore, with native silver, silver glance, and iodide and bromide of silver (the plata azul of the Mexicans). Although the mountains have, at this point, given place to low hills, I could observe the same conditions of the lime strata, as at Minas Viejas, namely, a westerly dip at the western end of the vein-system, and an easterly dip at the other end. At the Rosario hill the extensive burrows of rock indicate with what energy the Spaniards formerly worked that mine. Indeed, the vigor and productiveness of their mining operations in this region is matter of history. Owing to the imperfection of their mechanical appliances, however, they nowhere penetrated to great depths. At Minas Viejas they were prevented from sinking deeper than fifty varas (150 feet) by the gas which accumulated in the mine. This was probably carbonic acid, set free by chemical changes in the limestone and ore. It would be considered but a trifling obstacle by engineers of the present day, and the abandonment of this rich and profitable mine for such a cause is curiously illustrative of the rude and incomplete processes employed by the Spaniards. On the other hand, their work was not badly performed, when judged by the standard of their knowledge. At Vallecillo, their underground operations—as I have satisfied myself by inspection—were carried on in solid and workmanlike style. Here they were driven out by the accumulation of water, and the cost of removing it. How helpless was the human race without steam! An American company is now working this mine, and hoisting a good deal of galena, which is smelted on the spot in a Scotch hearth. The same company is working the Minas Viejas, but without satisfactory results, since the carbonate of lead declines to behave in the Scotch furnace, as it were galena—though the present director of the works is determined to overcome its obstinacy in that respect. Twelve years of unsuccessful experiment have not yet convinced the company that the laws of nature cannot be drilled into obedience—even by an ex-Major of the Army!

The lime-formation continues to the south-east across the Rio Grande, when it is, however, soon covered with marine sand. Between Vallecillo and Mier (70 miles) it carries several veins, appears again at Rio Grande City, and once more between that place and Corpus Christi. This exposure of it also contains a mineral vein. The whole remaining surface between Laredo, Rio Grande City, and Corpus Christi is covered with marine sand, containing about one per cent. of magnetic iron sand. I found in several gulches petrified wood and iron pyrites.

Guerrero is built on tertiary clay, and possesses several thick beds of lignite, the use of which as fuel is forbidden by the wise alcalde, who considers the vapors of burning coal injurious to the public health! The whole population continues, therefore, to employ as domestic fuel the highly salubrious dung of horses and cows, and the great coal beds exposed in the gulches on every side are scrupulously let alone!

At several points between Laredo and Corpus Christi, I found positive indications of iron ore, which I however suspect to be the gossan outcrops of metalliferous veins, since the character of the iron-stone is very peculiar, differing from the *habitus* of ordinary iron ores, and corresponding so closely with that of the outcrops of the veins already developed in the Jura lime of Nuevo Leon, that one can scarcely avoid classing them all together.

MINING SUMMARY.

Nevada.

OUTSIDE DISTRICTS OF EASTERN NEVADA.

A correspondent of the San Francisco *Bulletin*, writing from Hamilton, Sept. 22, gives the following interesting summary of news from the leading mining localities of Eastern Nevada. He says:—

"Having lately visited a number of what is termed "Outside Districts" in this part of the State, I embody in the following letter the results of my inquiries and observations, as well also as some information in regard to a few of these districts not visited by me. The most of these Outside Districts are of recent formation, though the organization of several, such as the Diamond, Newark, Hot Creek, and Reveille, date back four or five years. White Pine has for years past been not only a center of supply, but also of colonization for all southeastern Nevada; nearly all the population in the Outside Districts having emanated from here.

"THE DIAMOND DISTRICT.

"To describe these localities with something like system, we may begin with the Diamond District, lying about fifty miles in a N. N. W. direction from this place, on the westerly slope of the Diamond Mountains, one of the most lofty ranges in the State, and which here reaches its greatest altitude. The mines themselves, however, are not so elevated, being situate in the foothills of the mountains. This District was laid out in 1864, about which time a good deal of attention was directed towards it, and considerable work done. All along the lower slope of the mountains nut pine (about the only timber found here) is quite abundant, bunch grass also growing in the valley adjacent. Water is rather scarce, there being but few springs and only one small stream in the District. The prevailing formation is limestone mixed with streaks of porphyry, the former abounding in coralices and other fossils. The ledges, which are quite numerous, and in many cases large, are tolerably well defined, and have a north and south strike. Several of those opened appear to carry a good body of ore, the latter consisting of argentiferous galena impregnated with copper; much of it is rich, assaying largely in silver. Work was not long since in progress on the Centenary and the Elma lodes, the only two upon which anything has latterly been done. The District is of easy approach, the road from Austin to White Pine passing a few miles to the south and the old overland road a short distance to the north of it, while the new toll road, just opened from Carlin to this place, runs through the western portion of it. There are but few, if any, people now remaining in the District.

"Adjoining the Diamond District on the south, but lying on the east slope of the mountains, is

"THE NEWARK DISTRICT,

"Organized in the fall of 1866, and distant from Hamilton thirty miles in a nearly north direction. The easterly face of the range, which here reaches an elevation of 11,000 feet, is exceedingly precipitous and rugged. The altitude of the Diamond chain, in this neighborhood, is indicated by the fact that the snow falls here earlier, and lies later in the season, than upon any of the surrounding mountains; its apparent height being increased by the abruptness with which it springs up from the Great Railroad valley, which it overlooks throughout its entire length. In this valley, and but a short distance from the mines, there are considerable bodies of good grass and farming lands, an extensive but shallow lake, a vast tract of alkali plains, and a salt marsh covering several hundred acres, from which a large quantity of salt suitable for reduction purposes has been gathered the present season. This saline deposit, as is the case with all the beds and marshes in Nevada renewing itself by a constant process of florescence, is incapable of exhaustion.

"The growth of timber on this side of the range is rather scanty, consisting mainly of nut pine and juniper. Water is in better supply, several considerable streams making their way down the cañons that here cut the mountain's side to a great depth. There are but few claims located in this district, the entire number being generally considered on one main lode or belt, and its spurs stretching along the mountain north and south, about 1,000 feet above its base. The Chihuahua, the Washingson and the Lincoln claims, the only ones upon which much work has been done, have been opened by means of excavating shafts, levels and tunnels, disclosing in the latter satisfactory evidences of wealth, and in the former considerable bodies of good ore, the product of this mine up to the present time having amounted to about $100,000. The geological formation here is similar to that in the Diamond District, just described.

"The Centenary Company have here a fine 20-stamp mill, erected in 1867, which has since been doing well, running on ores from the Chihuahua claim, and, for the past year, mostly on those from the White Pine mines. There are about one hundred people in the district, the most of them employees of the Centenary mill.

"Lying directly west from Newark, and on the opposite side of the range, eleven miles off, is

"THE PINTO DISTRICT,

"Discovered during the early part of the present year, and organized in the month of March last, under an elaborate and excellent code of local laws. The prevailing formation here is not essentially different from that in the two districts just noticed, the wood and water supply being about the same. Good grazing is also afforded by the bunch grass in this district and vicinity. The wagon road from Austin and also the new road from Carlin to White Pine runs through Pinto, rendering it easy of access from every quarter. A good many claims have been taken up in this District, those belonging to the Pinto Mining Company being the most extensively developed and the most promising. Large masses of extremely rich ore, of the chloride variety, have been taken from some of their claims, samples of which have assayed as high as $21,000 to the ton. A lot comprising twenty tons of their ore, recently worked at the Newark mill, yielded at the rate of $167 per ton; there being, as is supposed, much of the same quality in their mines. A town named Silverado, containing now some dozen or two houses and cabins, has been laid out on an eligible site, from which a wagon road has been built to the principal mines. There are about sixty people in the District, and a good amount of work has been done upon the various claims, many of which exhibit very encouraging prospects. A considerable quantity of fair grade ore having been taken out, the want of a mill is beginning to be felt in the district.

"THE EUREKA DISTRICT

"Adjoins Pinto on the south, and resembles the latter in most of its leading features, differing, however, in the character of its ores, which consist mostly of argentiferous galena, requiring to be reduced by smelting. The District was erected in the summer of 1864, but little was done until the present season towards developing its metalliferous deposits, on account of the obdurate character of the ore, which is contaminated by the presence of lead and other base metals. During the year 1868, Monroe & Co. having, by location or otherwise, become owners of a good many claims, proceeded to put up smelting works, which, on coming to be tested in the month of May last, were not found to answer expectations, the chief defect being, however, in the want of a suitable material lining the furnace. In the meantime, the properties of this company having passed into other and more efficient hands, these works have been improved, their capacity been enlarged and their more obvious defects remedied, and it is confidently believed that the most satisfactory results will be obtained on starting them up, which is to be done during the present month. Very little work has been done in this District except by the Monroe Company and their successors, the latter having ample means and intending to make a thorough trial of the ores, and, if successful, to prosecute operations on an extensive scale. The affairs of the new company are under the supervision of Major McCoy, of San Jose, a man of energy and excellent ability, who, having already expended large sums in the purchase of and in making preparations for working the mines, is now taking in heavy supplies for winter use. The ores of this District assay generously in silver, and there is no question but it will distinguish itself within a few months for the production of that metal. Eureka contains but few inhabitants apart from those in the employ of Major McCoy, the entire population numbering about fifty.

"Journeying sixteen miles S. S. W. from Eureka we arrive at

"THE SPRING VALLEY DISTRICT,

"Situate also in the Diamond range, and organized in June last. Here, too, the prevailing formation is limestone, but the ledges are generally strong and better defined than is usual in this country rock. The district is of easy access, and abounds in grass, as well as in wood and water; but, being of recent discovery, not much work has yet been done in it. The ores, which are a mixture of chlorides and sulphides, carrying also horn silver, assay remarkably well, and several wagon loads, milled at Austin, are said to have given a large yield. There are but few miners in the district, and it is not likely that much will be done there the present season.

"Continuing along the Diamond Mountains a distance of thirty miles, we come into that portion of them denominated the Hot Creek Range, on the eastern declivity of which are situated

"THE MOREY AND THE HOT CREEK DISTRICTS,

"Discovered and organized during the excitement that attended the discovery of the Silver Bend mines in 1866. They are well supplied with wood and water, and the entire country being covered with bunch grass pasturage, is abundant both summer and winter. The country rock in the Morey District is composed mainly of porphyry, which in places has suffered much displacement, causing also a marked disturbance of the walls of the lodes so far as traced by present explorations. In the latter part of 1868 a number of the best looking claims in this District, then owned by men of small means, having been purchased by a New York Company, a good deal of work has since been expended upon them. The prospect of their affording profitable employment for a large sized mill is now good; but the company have wisely determined to postpone the erection of reduction works until that point is, through further developments, settled beyond contingency. There are not now over thirty men in the District, nearly all having left, as was also the case with Hot Creek and Reveille, at the time of the White Pine hegira. A considerable number have, however, since returned, at least to the two districts last named, each of which has a population varying from fifty to seventy persons.

"The deposits at Hot Creek lie in limestone, the ones here, as well as at Reveille, being highly chloridized, and in other respects bearing a close resemblance to those of White Pine, while in Morey they are to a greater extent sulphuretted.

"From all the Districts considerable quantities of high grade ore have been sent to Belmont and Austin for reduction; the plan adopted by the miners having been to follow the narrow seams of rich ore that abound here as far as practicable, without thoroughly opening the enclosing ledges. By this means quite a large population was sustained for several years in that section without much effectual exploration being accomplished. The burning of the old Dominion Mill, located in the Hot Creek District, in February, 1868, did much to retard operations there, the exodus to White Pine following soon after, having completed the discomfiture of this unfortunate District. With a return of a portion of the mine owners, however, work having been resumed on a number of claims, the future of Hot Creek is again looking brighter.

"Proceeding still south along the Diamond Range thirty-five miles brings us to

"THE REVEILLE DISTRICT,

"Where, after a long season of dullness and almost entire desertion, we find quite a population gathering in again and considerable activity being evinced, both in opening old and prospecting for new locations. Reveille is badly off for water, having also but little good grass or farming land. Pine, however, the common wood of the country, as well also as bunch grass, is tolerably plentiful. This district has labored under the further disadvantage of having had an imperfect mill erected in it at an early day, which, having enticed miners into patronizing it, made such poor returns as discouraged them from further efforts, and brought the district into general disrepute. Recent and more thorough workings of the ore, in connection with more extensive explorations of the mines, tend to show that the value of the latter has been underrated—a circumstance that has largely increased the population of the district, and induced considerable investments in its mines. Machinery for a new mill having been taken into Reveille, and the old one previously there having undergone repairs, we may fairly presume that with increased facilities for the extraction and production of its ores, this district will be able soon to vindicate the claims at one time advanced for it, and thus restore its ancient fame.

"Leaving Reveille and travelling some ten miles towards the east across the valley, brings us to the White Pine Mountains, at about one hundred miles south of this place and fifty north of the

"THE TEM-PIUTE MINING DISTRICT,

"Situate in a high and desolate ridge making out in a southeasterly direction from the White Pine range. The mines are on the southerly pitch of the mountain, which, besides being precipitous and craggy

is entirely destitute of water and nearly so of grass and timber. That the deposits here are immensely valuable, or at least would be so were there facilities at hand for reducing the ores, admits of no doubt. But the nearest water is eight miles distant, the mines being greatly elevated above the intervening valley. This district was discovered and a system of laws adopted for its government in January last, since which time there has been but few permanent residents in it, nor has much work as yet been done. The most of the claims hitherto located range along what seem to be two parallel lodes running north and south, and traceable by occasional outcrops a distance of five or six miles. They are of masterly proportions, varying from ten to one hundred feet in thickness, and so far as developed, exhibit every feature of true fissure veins. The ore occurs apparently in chimneys, and is no doubt abundant. The assays made would seem to establish for it a high grade, though no working tests have yet been made of it, at least on a large scale. It is mostly of the chloride school, and can probably be worked by the simple processes in vogue here. Large offers have been made for the leading claims in this district by both California and Eastern capitalists, but have been declined by Messrs. McMurray and Russell, the principal owners, who seem desirous of exchanging a portion of their mines for a mill, rather than of selling the whole.

"Lying on the westerly slope of the White Pine range, at a point about ninety mines north of the Tem-Piute, are

"THE GRANT AND THE TROY DISTRICTS,

"Organized last October, and in which a good deal of work has since been performed. They are well conditioned as to wood and water, a number of streams flowing across them, one of which, in the Troy District, is sufficiently large to afford a valuable water-power. This district contains also, besides an abundance of piñon, mahogany and juniper, large groves of pine and fir, suitable for lumber. The ledges here are large and symmetrical in structure, some of them, such as the Blue Eagle, Troy, Oakland and some others, being remarkable in this respect. Both the lodes and the ores here bear a strong likeness to those at Belmont, arguing a permanent and productive character of mines. An effort was made, early in the season, to get a mill erected in the Grant District, which, having failed, the miners all left, there having been no white men in the district for several months past. In the Troy District, the Beaty Company, who own nearly all the valuable mines, as well as the water privileges and woodlands, are still at work, having kept operations in progress steadily throughout the summer. They have thoroughly prospected some of their leading claims, which exhibit almost conclusive proof of large and enduring wealth. The facilities for mining and reducing ores here are great, water with wood, both for fuel and lumber, being abundant, and the bunch grass on the mountains affording a fine summer range for stock.

"In the second chain of mountains, east of the White Pine range, is

"THE PATTERSON DISTRICT,

"Situate on and covering a portion of both slopes of the Piowan or Steptoe range of mountains, and distant from here about thirty-five miles in a S. S. E. direction. The district was laid out and the usual set of laws adopted early in February. Two months later it contained over four hundred inhabitants, rather more than it numbers at present. The district is extremely well situated as regards wood, grass and water, there being all about the mines extensive forests of piñon, juniper and mahogany, with some yellow pine fit for manufacturing into lumber, for which purpose a sawmill has been erected convenient to this timber. In fact, so abundant is the supply of fuel and so limited the immediate prospective demand that but few wood ranches have as yet been taken up, though this species of property is eagerly sought after in most districts, even where the mines are much less promising than in Patterson.

"Two mining towns have been started there: Springville, at the mouth of the cañon opening into Steptoe valley, and Montezuma, a mile and a quarter above, and in close proximity to the mines. Both the ores, the country rock, and the character of the deposits are much the same in this district as on Treasure Hill; the former, though of fair average grade, not being by any means so rich as the White Pine ores. Owing to proximity to the Mormon settlements, most staple articles of provision can be obtained here at moderate rates; and as there are considerable good farming and meadow lands in the vicinity, these commodities can never reach extravagant prices. A small mill, lately completed, is now running with gratifying results in the district, demonstrating the urgent necessity that exists for additional establishments of this kind.

"In the region adjacent to Patterson on the south and east are several districts, all giving good promise, but none sufficiently advanced in population or development to require special mention. They are all recent discoveries, having been first prospected and organized early in the past spring. The Shoshone District lies east of Patterson twenty-five miles, at the western base of the Snake range or mountains, with the Snake District twenty miles to the north of it. Though little prospected and not all developed, their mineral wealth is unquestionable; while in the matter of timber and water, they excel any other district in the State. The forests here are dense, the trees also attaining a large growth. Numerous streams of pure cold water filled with trout leap down from the mountains, and flowing out upon the valleys irrigate and fructify large tracts of land. Deer, mountain sheep and other game abound, while the streams and little lakes swarm with water fowl. The Indians here are peaceful and inoffensive, and having obtained from their Mormon neighbors some ideas of cultivating the soil, are desirous of having the whites among them. Fairview District lies twenty miles south of Patterson, in the same range with the Ely District, twenty-five miles still further on in the same direction. They contain numerous lodes, none of them at all opened, but many abounding with favorable surface indications. They have wood and water in fair supply, and, besides considerable tracts of arable and meadow land in the vicinity, are not far from several flourishing Mormon settlements, where nearly all the necessaries of life can be obtained at moderate prices. One of these colonies, consisting of some eighty families, is located but ten miles east of Fairview, being about thirty southeast of Patterson. One or two other districts are said to have been organized in one quarter, but they have not as yet come much into notice, nor is it probable that they contain at present any permanent population.

"Situate in the Piowan range of mountains, fifty miles north of Patterson and thirty-five nearly due east of this place, is

"THE ROBINSON DISTRICT,

"In every respect one of the best-conditioned and most promising, as it is just now by far the most progressive and flourishing in all the districts in Eastern Nevada. The ledges here are numerous, many of them being marked by great strength and fecundity. The geological formations are analogous to those prevailing in this district, a country rock of limestone, capped with slate. The deposits, however, seem to be less capricious than here, being confined to more regular channels; and, in fact, conforming more nearly to the requirements of true veins. The ores, though in some cases carrying a small per centage of the base metals, gradually pass, at inconsiderable depths, into the various sulphuretted forms, running finally into a class of chlorides which assay from two or three hundred to as many thousand dollars per ton; all the working tests made establishing both the facile character and the extreme fertility of these ores.

"With great mineral riches this district combines many other natural advantages, such as ample supplies of water and timber; an equable climate, unlimited pasturage, both winter and summer, large bodies of hay and farming lands; and finally, easy of approach, being less than 100 miles from Humboldt Wells, on the Central Pacific Railway, with which it is connected by a fine natural wagon road running through open valleys all the way. There is also a first-class toll road between this place and Robinson. There are now two steam sawmills in the district, cutting lumber from the white and yellow pine, of which there are several large groves growing near the mines. Timber, both for fuel and lumber, is so convenient and plentiful that neither of these articles can reach extreme prices here; nor can the cost of water supplies, agricultural products, or any other of the staples required for mining and milling operations, or for human subsistence, be advanced beyond moderate figures.

"Two towns, Millville and Mineral City, have been laid out and are now thrifty and growing places—their joint population amounting to some four or five hundred. The former is situated on Murray Creek, a stream carrying over 4,000 inches of water, and which, having a considerable fall, affords a large amount of propulsive power. The creek rises in an immense spring, and running northeast, flows for a long distance through Steptoe Valley, irrigating extensive tracts of meadow land in its course. Robinson's Creek also flows through the district, carrying nearly 1,000 inches of water, and by its rapid descent creating a large driving power. A 10-stamp mill, now nearly completed, will in the course of a week or two, be shipping bullion from this district: and it is expected that at least one more, and perhaps a much larger establishment of this kind will be operating here before the winter sets in. A considerable amount of capital has already been invested here by one of the most successful and sagacious men of San Francisco; which, besides inducing other investments and stimulating business generally, promises a most profitable issue to the enterprise in question, which, embracing a variety of interests, is being prosecuted with judgment and a vigorous administration.

"OTHER DISTRICTS—SUMMARY.

"Lying beyond Robinson, forty miles to the northeast, is the Sacramento District, with Egan District a short distance to the north of it. Sacramento is considered a very promising mining locality; but as very little work has yet been done there, it would be premature to pronounce any positive opinion on its merits. Egan is an old district, having been organized nearly ten years, soon after which the Social and Steptoe Company took in a five-stamp mill, which they have been running successfully a good portion of the time since. They are now erecting and have nearly completed, a 20-stamp mill, and are also putting up extensive hoisting works, it being their intention to prosecute work upon their mines, with more vigor than ever before.

"With this enumeration, mention has been made of all the mining localities in Eastern Nevada usually denominated "Outside Districts," save perhaps, two or three, such as the Racine and Bald Mountain, situate on the Ruby Range, and distant from fifty to eighty miles north of this place. But as very little work has been done in any of these districts, and they are without more than a few and possibly any inhabitants, they do not at the present call for more extended comments."

MINES AND MILL SOLD TO ENGLISH CAPITALISTS.

The Reese River *Reveille*, Oct. 13, says: "Yesterday the sale of the mines and mill of the Lane & Fuller Company, which has been under negotiation for several days, was effected for the sum of $200,000. The purchasers are English capitalists. The mines of the old company are the most fully developed in Lander Hill, and at the time of the sale and for months previously their exhibition of ore was wonderful. In addition to the mines, the company sold the Mettacom mill of twenty stamps, and supplied with four reverberatory furnaces, and the large stone and brick structure, situated on the lower grade, originally designed for the New York and Lander mill. The sum paid for the very valuable property will appear insignificant to many of our readers. Immediately after the sale was made, the large body of miners employed in the mines was discharged, excepting the small force that was engaged in sinking the main shaft under contract. This work can be carried on very economically, as it will be necessary to keep the engine and pump in motion to prevent the mines filling with water. The mill has been, or will be closed immediately. The transfer of the property to the English company may prove to be of great benefit to this district; that, however, remains to be seen. In the meantime we regret that so many workmen have been thrown out of employment."

Idaho.

THE editor of the Silver City *Avalanche*, upon a recent visit to the War Eagle mines, found mining affairs wearing a cheerful aspect. He thus reports in his paper of Oct. 30:

"THE IDA ELLMORE

"Has her main shaft down now 340 feet, and in a few feet farther a new level will be formed; the ledge at this point continues about four feet wide, and the ore is richer if possible than any yet taken from the mine; in the third level where stoping is in progress at present, two hundred and thirty feet north of the main shaft, the ledge is about 2½ feet in width. This mine has never been in as good condition or looked as well as it does now.

"The annexed extract from Superintendent John M. Wilson's report of the business of the company, for September, shows it to be in a healthy condition:

"No. tons extracted	593
No. tons milled	593
Bullion produced	$41,240 55
Average per ton	69 54
Total cost per ton, mining, milling, hauling, etc	30 70
Average cost per ton, mining, (including hauling)	20 38
Average cost per ton, milling (including assaying)	10 32

"THE GOLDEN CHARIOT

"Is being worked by contract. A tunnel is being driven on the fourth level, in both directions on the ledge from the principal shaft—north to the Ida Ellmore boundary, and south to the southern line of the mine. Two contracts have recently been let for stoping between the second and third levels. The first, south of the shaft, to Bennets & Co., and the second, north, to Kief & Co., and they are getting along with their work well. The width of the ledge has increased some, and the ore is very rich.

"POORMAN

"This mine, which has been considered on the sick list for some time, begins to manifest strong symptoms of a permanent recovery. A two-foot ledge, of the best mineral that has been taken out of the mine for two years, was uncovered a few days ago, three hundred feet south of the main shaft, in the fourth level, on which a shaft has been sunk to the depth of several feet, the vein widening as it progresses.

"IN THE PECK & PORTER

"There is a ledge about two feet wide, of good paying mineral. They are stoping at a depth of ninety feet; the shaft is sunk thirty feet below this point, and it is the intention to sink fifty feet farther still, before making another level.

"THE RED JACKET

"Is a rather narrow vein; it will average from ten inches to a foot, but it is exceedingly rich and retains a uniform width all the way. Drifting is in progress now eighty feet from the surface. The shaft will not be sunk any deeper for the present, but a tunnel commencing some three or four hundred feet north of the present works, will be begun in a few days. This tunnel is designated to run in on the ledge, and will strike the perpendicular line of the main shaft 150 feet below.

"THE ALLISON

"Is looking much better than formerly, some of the richest silver ore that has ever been extracted from any mine in camp, is now being taken from the drift 150 feet from the surface."

Utah.

THE GOLD MINES.

THE editor of the Corinne *Reporter*, having taken a look at the mines at Bullion City, Puite county, thus writing, under a late date, chronicles the results of his investigations: "I started out on Sunday morning for a look at the mines. The scene was one of indescribable beauty. From the western summit a clear mountain stream came dashing down the lowest bed of Pine Gulch, its transparent waters sparkling in the clear light of the cloudless autumn day, while on both sides of the town rose the steep sides of the gulch, covered to the summit with a dense forest of hard pine, fir, balsam and quaking-asp. Not to enumerate a day of climbing, I will begin with the oldest and specify the main points of the various leads, somewhat in the order of their size and importance. 1. The Gould & Curry, the oldest lead in the district, named from the famous Nevada lead, was located March 25, 1868. It is a very large and well defined lead; crops out to the extent of 5000 feet in length and 35 in width. It may here be noted that there are no "pockets," so-called, in the Sevier district. Leads generally run all the way from two to twenty feet in width, though the Gould & Curry of Nevada runs in places as high as sixty feet. 2. The Webster, discovered and located April 5, 1868. It runs from sixty to ninety feet in width, with good pay-rock the whole width, and wall-rocks well defined, and crops out about 4000 feet in length. The Bully Boy is a continuation of the Webster, the two having probably the best facilities for working of any in the gulch, the rock cropping out to a very low point, and wood and water being very accessible. The workmen are down seven feet on the Webster, and have done work to the amount of $1000. 3. The Illinois was located April 5, 1868. It crops out for 3000 feet, width averaging seven feet, and has been worked at one point to the depth of a hundred feet, showing a fine, well marked wall-rock on both sides. The wall-rock through this whole district is composed of a rather soft granite, easily broken, with occasional mixtures of porphyry, and the walls of all the leads stand nearly perpendicular. 4. The Niagara was discovered and located November 18, 1868. It contains a very rich quality of quartz, but is more of a mass in formation than a regular lead. It prospects rich, but has not been developed far enough to return any certain exhibit. 5. The Great Western is a very well defined lead, from six to ten feet wide, and crops out 2000 feet, containing some very fine rock. It was located June 11, 1868. Of all the leads so far mentioned, the lower ends rest nearly on the creek, which runs down the bottom of Pine Gulch. 6. The Young America was located June 7, 1868, and extends 1500 feet in length and from six to eight feet wide. Some very good rock has been taken out of it, but it has been worked very little as yet. 7. The Yankee Blade was located July 3, 1869, the newest lead, but has been worked considerably. They are down at one point twenty-five feet. This is a 'blind lead,' not cropping out much, but contains a good quality of quartz, with well-defined wall-rock. 8. The Schimmerhorn was located July 19, 1869, and 3000 feet are now claimed. The rock very much resembles that of the Webster; the lead about six feet wide of paying vein, black and white strata cropping out for 1000 feet, with fine wall-rock.

"Besides those specified are some fifty others, of which the best-known are the Savage, Rothschilds, Pacific, Comstock, Bay State, Big Missouri, Brigham Young, Governor Durkee, General Grant, Ida May, Jessie Fremont, Lady Gay, Hattie Cloud, Champion, Clifton, Dolphin, Dunderberg, Deadwood, Dexter, Gorman, Indiana, Last Lode, Silver Tide, Bed Rock, May Walk, McCurty, Montana, Nestor, Napoleon, Knickerbocker, Old America, Pride of Orleans, Rainbow, Red Man's Lode, Shakespeare, Senator and Washington.

"The only ore thoroughly tested has been from the Webster and Bully Boy, and the assay was reported to me at $75 per ton. Quicksilver and cinnabar have been developed in the Big Missouri in considerable quantities."

Minnesota.

THE VERMILLION GOLD MINES A STUPENDOUS FAILURE.

THOSE who heeded our repeated warnings against investing capital in the Vermillion mines, will find in the following account taken from the Superior (Wis.) *Tribune*, a paper which has for several years staunchly advocated investments in that quarter—much that is interesting. Says the *Tribune*: "We formerly had considerable faith in the so-called Vermillion Gold Mines and for a long time after mining operations commenced there, we hoped that they would prove successful. But as those mines have been long and thoroughly tested by the best machinery and by the best methods and processes known among miners, and have proven to be most costly and stupendous failures, we see no propriety in any longer concealing that fact from the public. The aggregate amount which has been expended there by the various mining companies will reach, as we are credibly informed, very nearly, if not quite $200,000; and after all this immense expenditure, the mines have been abandoned, and during the coming winter the various stamp machines and other apparatus belonging to the several companies will be brought back again to the head of the lake to be disposed of, or to be used elsewhere. Col. Nobles, Mr. Seymour and others who have been engaged during the last three or four years in testing these mines, deserve much credit for their energy and perseverance; and, for their sake and for the sake of the early development of the vast region north of us, we would that their former golden visions had been fully realized. We regret to say, however, that the facts prove the Vermillion Gold Mines to have been a huge sell, and we are especially sorry that some of our own citizens have been victimized thereby."

Arizona.

LATE Arizona advices are as follows: A weekly line of stages now connect Prescott and La Paz. Two hundred immigrants from White Pine recently arrived at Prescott, and many more are on the road. Lieutenant Gibson, of the Eighth Cavalry, had a fight with the Apaches on the 28th ultimo, near Camp McDowell, killing eighteen. Fifteen Tennessee families are reported en route for Arizona.

MARKET REVIEW.

The Coal Trade.

NEW YORK, Oct. 28, 1869.

ANTHRACITE COALS.

WHOLESALE.—We find a full supply of the large sizes of coal in the market, while the small sizes are very scarce. Stove coal is inquired for on every side, and even our city yards are unable to get a supply. This is due to the fact that consumers have just awakened to the actual imminence of winter, and have all come into the market at one time, just as we anticipated they would do; and it is simply ridiculous to suppose that all can be immediately supplied. Our routes of transportation to tidewater were badly crippled by the late storm. The Schuylkill and Lehigh canals have not as yet got into working order; and it is very doubtful if the latter will do so this season. We hear of districts in the centre of this State where they are entirely without a supply of coal. These are the people that took the advice of the country press, whose ideas were in turn moulded by our daily city papers, who for the past three or four months have advised consumers to hold off and not buy their coal. Now they find their mistake, and call loudly for help. Consumers ought to reflect that retailers do not generally have the storage room or the capital to carry large quantities of coal, and if their patrons hold off from buying their winter's supply in August, and the yards are full of coal that should be in cellars, the retailers are prevented from laying in *their* winter stock. The principal feature of the past week was the

AUCTION SALE OF SCRANTON COAL,

Which took place on Wednesday last. The attendance was large. The average price obtained for the coal was $6 36, being an advance from last month, on the aggregate sales of 30 cents per ton. This average result was considerably below our expectation; but it shows plainly that the market is overstocked for large sizes. The first lot offered was 10,000 tons Lump; $5 50 was reached on the first few hundred tons sold, when the price declined to $5 25. Fifteen thousand tons Steamer was next put up; the first lot knocked down brought $5 47½, and the balance was mostly sold in small lots at $5 27½@5 25. Ten thousand tons Grate was next offered, the first lot brought $6 65, and the price then declined to $6 25. Eight thousand tons of Egg was more eagerly sought after, and the bidding became spirited. The first lot sold at $6 77½, but an advance to $7 00 was obtained on the final lots. Seventeen thousand tons Stove Coal was next offered, and everybody stood on tip-toe. The first lot sold at $8 35, being an advance of $1 15½ on last sale; but in view of the slow delivery by the Delaware, Lackawanna & Western Railway Company at Elizabethport, the price could not be sustained. It fell quickly to $8 20, at which price some 8000 or 10,000 tons were sold. The balance was cleared out in large lots at $8 12½@8 07½. Ten thousand tons Chestnut sold at $5 85@6 02½.

The following is a comparison of prices between the sale of Wednesday and that of last month:

	October 27.		September 29.	
10,000 tons Lump	$5 25	@5 50	$5 12½	@5 25
15,000 tons Steamboat	5 25	@5 47½	5 00	@5 07½
10,000 tons Grate	6 25	@6 65	6 00	@6 35
8,000 tons Egg	6 65	@7 00	6 60	@6 65
17,000 tons Stove	8 07½	@8 35	6 95	@7 22½
10,000 tons Chestnut	5 85	@6 02½	5 40	@5 57½

We do not think these sales should be taken without due allowance as a guide for prices. It takes two, and often three, weeks to get the coal delivered to vessels after they arrive at the Company's docks at Elizabethport. This makes the freight from their docks $1.15 @ $1.25, while from other docks vessels can readily be had at from 70 to 80 cents to this city. In addition to this, the Company makes the purchaser pay any demurrage that may accrue from this delay of vessels, which often amounts to as much as $100 on, perhaps, a small cargo of 100 tons. This must necessarily have much influence in lowering the prices obtained at the sale, and tends besides to deter purchasers from bidding. The only lots of coal that we find offered this week are some choice varieties of Wilkesbarre and Lackawanna by E. B. Ely & Co., 111 Broadway, and that of the Delaware & Hudson Canal Company, which can be had at our quotations.

RETAIL.—Trade has been very brisk during the past week, and prices have accordingly advanced. Pittston, $8.50; Lackawanna, $9.50; Lehigh and Schuylkill, $9.50 to $10.

FREIGHTS.—Coastwise freights are firmer, and we notice an advance of from five to ten cents.

ITEMS.

The Wilkesbarre *Record of the Times* says:

"Pine Ridge is again in the full tide of successful experiment, the gangways being ventilated and machinery in operation. Coal trains lengthen as the days shorten, and trade seems active."

The Hazleton *Sentinel* says:

"The stagnation which has reigned in this district since August 14th, was interrupted by the resumption on Monday last, of work at Mount Pleasant. This colliery now gives employment to about a hundred men. When it became known that resumption had been determined on, several hundred men went to the place in search of work. It is understood that the terms upon which work is undertaken are similar to those which have prevailed at Buck Mouniain since the resumption in July.

"A Pardee & Co. have offered, for the months of October and November, an advance of forty cents a car on their two-ton car, and of fifty-five cents a car on their New Laurel Hill car, over the price paid in April last, and a proportionate advance on labor. This is an advance of about forty per cent. The offer is not made in the form of a proposition to the 'Union,' but in response to inquiries from individuals. Substantially the same terms have been offered by other operators in this region. Thus far, however, the miners manifest no intention of accepting them. It is stated that the officers of the 'Union' refuse to call a meeting for the discussion of the offer. It seems to be the impression that large numbers would gladly go to work at those rates, but all fear the consequences of taking the first step in that direction.

"On the 20th inst. the colleries in the Beaver Meadow Region made the following offer, viz.:—Fifty-five cents a ton as a basis price, with coal at $5 in Elizabethport, and ten per cent. advance on each net advance of $1 per ton; miners' wages on the basis, $15 a week; inside labor, $12; outside labor, $10; with an advance of twelve and a half per cent. on each net advance of $1 in coal. The basis for tolls and shipping expenses to be $2.25 from Mauch Chunk to Elizabethport.

"This proposition has been rejected by the men. It remains open during the present week, but if not acceded to on the 23rd is then to be withdrawn.

"It is so manifestly the interest of the carrying companies and operators of the other coal regions that the Lehigh Coal Field should remain idle, and the pressure brought to bear is so heavy, and the reported promises of assistance to the men here are so large, that the rumor, very current, that higher powers than the Miners' Union, are now making tools of the men, to carry out their purposes, does not seem either incredible nor unfounded."

Later news from this district informs us that the Beaver Meadow operators had yielded to the men, and that Hazleton would probably follow next week.

The Pottsville *Miners' Journal* states that:

"The Schuylkill canal is not yet ready for navigation throughout the whole line, but we learn boats will be up early next week. The trade for the week is confined to the line and boats loaded waiting to pass through.

"The coal business is brisk, and prices have again advanced here, and also at the shipping ports, from 25 to 50 cents per ton.

"The Morris Canal will be ready for business in a few days.

"The Lehigh Canal will not be repaired before the 10th of November, so that it is not likely that more than one trip will be made after it is repaired. The Delaware Division will scarcely be ready this season for business."

The *Miners' Journal* has repeatedly challenged the accuracy of our coal statistics, and claimed for itself a superiority in that respect. Week before last we took the trouble to expose the nature of its criticisms, by showing that the young person who undertook to overhaul our tables had subtracted the shipments of each week from those of the preceding *week*, instead of the same week in the preceding *year*, making much noise over the discovery that the result of his innocent little calculation was not to be found in our columns. The *Journal* has returned to the charge on an entirely new line, and undertakes to show that our totals do not agree with our weekly shipments. The rule which it employs in this demonstration being applied to its own tables, would show, for the week ending October 16, 1868, an error of 18,752 tons; for the week ending Oct. 23, 1868, an error of 122,086 tons; for the week ending Oct. 16, 1869, an error of 17,838 tons, and for the week ending Oct. 23, 1869, an error of 1,578 tons. These discrepancies are easily explained, and do not necessarily prove the essential inaccuracy of the tables.

The parading of them as a discovery by the *Miners' Journal* shows the same inexperience that could not distinguish a comparison of years from a comparison of weeks. We infer that the *Journal* has a new coal editor; and we recommend the proprietors to forbid his writing until he has mastered the elements of his department. The explanations which he will require to enable him to comprehend our tables we will cheerfully give, as soon as he has acknowledged the blunders we have already pointed out. "A little knowledge is a dangerous thing;" and the Pottsville *Miners' Journal* would do well not to copy the plan followed by this paper, unless it can command the intelligence to understand it.

The following table exhibits the quantity of Coal passing over the following routes of transportation to tide-water, for the week ending October 23, 1869, compared with the same time last year:

COMPANIES.	1868. WEEK.	1868. TOTAL.	1869. WEEK.	1869. TOTAL.
Phila. & Reading R.R.	95,371	2,563,495	109,190	3,053,432
Schuylkill Canal	36,869	774,096	15,922	535,455
Lehigh Valley R. R.	56,763	1,264,368	37,094	1,740,126
Lehigh and Sus. R. R.	17,878	359,132	30,794	692,256
Lehigh Canal	37,359	797,499		584,030
Scranton North	17,913	493,538	18,488	321,171
" South	19,480	881,273	27,835	901,074
Penn. Coal Co., rail	20,460	764,005	14,563	768,041
" " " canal	831	25,451	352	15,254
Del. and Hudson, rail			4,202	116,135
" " canal, north	50,652	1,354,961	22,107	901,331
" " " south			7,477	88,728
Shamokin	10,161	406,622		342,552
Trevorton	1,556	34,482	443	25,325
Short Mountain	4,238	96,778	2,520	87,158
Lykens Valley Coal Co.	2,282	72,842	2,275	59,743
Huntingdon & Br'd Top	6,632	213,906	6,919	288,928
Wyoming South	11,705	275,106		247,163
" North	4,370	60,556		53,727
Williamstown, Col'y	4,720	148,560	5,216	162,396
Total	393,258	11,315,079	315,200	10,904,015
1869	315,200	10,904,015		
Decrease	84,058	411,064		

Schuylkill Coal Trade.

Report of coal transported over the Schuylkill Canal for the week ending Thursday, October 21, 1869

	Tons.	Cwt.
From Port Carbon	7,803	00
" Pottsville		
" Schuylkill Haven	7,377	04
" Port Clinton	742	00
Total for week	15,922	04
Previously this year	519,532	16
Total	535,455	00
To same time last year	771,035	74

Report of coal transported over the Philadelphia and Reading Railroad during the week ending Thursday, Oct. 21, 1869.

	Tons.	Cwt.
From St. Clair	38,748	16
" Port Carbon	7,713	01
" Pottsville	6,859	17
" Schuylkill Haven	33,189	19
" Auburn	3,726	18
" Port Clinton	15,212	18
" E. P. R. R.	250	10
" Harrisburg and Dauphin	11,866	14
Total paying freight	117,585	15
Coal for Company's use	4,000	08
Total for week	121,585	03
Previously this year	3,398,578	10
Total	3,520,564	13
To same time last year	2,976,571	18

Cumberland Coal Trade.

B. & O. RAILROAD.

The shipments over the Baltimore & Ohio Railroad for the week ending Oct. 23, 1869, were as follows:

From Cumberland & Pennsylvania R.R.	Tons.
Consolidation Co	2,692 04
Borden Co.	1,817 15
Balt. & Hampshire Co.	331 11
Midlothian Co.	17 15
From Eckhart R. R.	
C. C. & I. Co.	1,623 14
Total	6,482 19

BY C. & O. CANAL.

For the week ending Oct. 23, 1869, the shipments by the Chesapeake & Ohio Canal were as follows:

	Tons.
American Co.	2,857 15
Borden Co.	2,081 12
Central Co.	3,607 08
Consolidation Co.	2,769 04
C. C. & I. Co.	1,160 12
George's Creek Co.	549 12
Hamp. & Baltimore Co.	539 06
Midlothian Co.	766 11
Maryland.	1,350 15
For private parties.	3,829 00
Total for week	18,502 15

Report of Coal Transported over Lehigh Valley Railroad

For the week ending October 23, 1869, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons.	WEEK. Cwt.	PREVI'S. Tons.	PREVI'S. Cwt.	TOTAL. Tons.	TOTAL. Cwt.
Total Mahanoy	12,768	02	354,294	17	367,062	19
" Beaver Meadow	1,647	14	340,052	03	341,699	17
" Mauch Chunk	438	03	245	16	683	19
" Upper Lehigh			8,581	11	8,581	11
" Hazleton	5,265	11	630,237	17	635,503	08
" Wyoming	17,928	12	359,364	08	377,293	00
Total	38,048	02	1,752,756	12	1,790,804	14
To Lehigh & S. R. R., at P'n. Hav. for rail	27	10	4,534	17	4,562	07
Do. for canal			120,734	09	120,734	09
At Mauch Ch'k for canal			97,546	03	97,546	03
Total Anthracite	38,075	12	1,975,572	10	2,013,647	13
Susquehanna Region Bit. Coal (Fall Creek)			552	03	552	03
Total by rail and canal	38,075	12	1,976,124	04	2,014,199	16
Same time last year	75,145	19	2,180,290	11	2,255,436	10
Increase						
Decrease	37,070	07	254,168	07	241,236	14
Forwarded East from M'h Chunk by rail	37,084	07	1,703,032	10	1,740,126	08
Same time last year	58,762	17	1,897,875	00	1,956,637	17
Increase						
Decrease	19,678	10	194,842	19	214,511	09

RECAPITULATION.

Forwarded East from M'h Chunk by rail	37,084	07	1,703,032	01	1,740,126	08
Delivered at M'h Chunk	16	07	738	03	754	10
Delivered on line of road above Mauch Chunk	246	04	6,654	10	6,900	14
Delivered above M. Chunk for use of L. V. R.R.	542	11	36,548	15	37,091	05
To N. C. R. R., at Mount Carmel			2,516	09	2,516	09
To L. & S. R R., at P'n Hav., for railroad	27	10	4,534	17	4,562	07
Do. for canal			120,734	09	120,734	09
Do. Packerton for rail	148	13	3,818	17	3,967	10
At M Chunk for canal			97,546	03	97,546	03
Total	38,075	12	1,976,124	04	2,014,199	16

Lehigh and Susquehanna Railroad.

Report of Coal Shipped South for the week ending Oct. 23, 1869.

WHERE FROM WYOMING REGION.	WEEK. Tons.	WEEK. Cwt.	TOTAL. Tons.	TOTAL. Cwt.
Total Mauch Chunk Region	11,907	08	151,160	10
" Hazleton "	204	10	119,769	04
" Upper Lehigh "			7,193	12
" Wyoming "	18,624	02	640,248	07
Grand Total	30,736	19	987,971	13
Corresponding week last year	35,826	13	789,720	10
Increase			198,251	03
Decrease	4,967	06		
Forwarded South from Mauch Chunk	29,870	00	642,658	16
Delivered on line of Lehigh & Sus'na R. R., above Mauch Chunk	522	03	27,532	00
Delivered to Lackawanna & Bloom. R. R. at Plymouth Bridge	401	16	16,654	05
Delivered to Lehigh Valley R. R. Co., at Sugar Notch			5,151	03
Delivered at Coal Port, for shipment by Canal			295,675	09
Total	30,793	19	987,971	13

Prices of Coal by the Cargo,

[CORRECTED WEEKLY.]

	AT NEW YORK, Oct. 28.			AT PHILADELPHIA, Oct. 27.		
SCHUYLKILL.	R. A.	W. A.		R. A.		W. A.
Lump	$—	$7	00	—	6 50 to	—
Steamer	—	7	00	—	6 50 to	—
Broken	—	7	75	—	6 50 to	—
Egg	—	8	50	—	7 00 to	7 50
Stove	8	00	9	00	7 00 to	7 50
Chestnut	—	7	00	—		6 50
Pea	—	—		—		—
LEHIGH.						
Lump	—	—		—		—
Steamer	—	—		—		—
Broken	—	—		—		—
Egg	—	—		—		—
Stove	—	—		—		—
Chestnut	—	—		—		—
Pea	—	—		—		—
SPECIAL COALS.*						
Diamond Vein	R. A.	9	50	—		—
New England	"	—		—		—
Locust Dale	W. A.	9	00	—		—
Honey Brook, Le'h	W. A.	8	00 to 8 50	—		—
Spring Mount	"	"	8 00 to 8 50	—		—
Sugar Creek	"	"	8 00 to 8 50	—		—
Sugar Loaf	"	"	8 00 to 8 50	—		—
Fulton	"	"	8 00 to 8 50	—		—
Stout	"	"	8 00 to 8 50	—		—
Old Comp'y's	"	"	8 00 to 8 50	—		—
Cross Creek	"	"	8 00 to 8 50	—		—
Chauncey	"	"		—		—
Girardville	"	"		—	7 00 to	7 50
McMichael	"	"		—	7 00 to	7 50
Duncan	"	"		—	7 50 to	8 00
Shamokin	"	"	7 50	7 50		—
Lykens Valley	"	"	—	8 00		—
Broad Top	"	"	—	5 25		—
Hill & Harris	"	"	—	6 50		—
Henry Clay	"	"	—	6 75		—
Powelton	"	R. A.	—	7 50		—
Burnside	"	"	—	8 00		8 00

Kittaning Coal Co.'s Phœnix Vein...f.o.b. $5 50
Lemon " " 5 25
Cumberland C. & I. Co.'s on board 7 25
Central C. & M. Co.'s " 7 25
Consolidated Coal Co.'s " 7 25

[*Dealers in these coals may be found in our advertising columns.]

Company Coals.

	L.	Str.	Gra.	Eg.	Sto.	Cst.
Scranton at E. Port	6 50	6 50	6 75	7 25	8 50	6 50
Pittston at Newb'g	—	—	—	—	—	—
Lackawana at Rond't	6 50	6 75	7 00	7 25	8 25	6 75
Wilk'b're at Hoboken	—	—	—	—	—	—

For freights to different points, see "Freights."

Prices for Coal at Mauch Chunk.

	F. L.	Bro.	Gra.	Eg.	Sto.	Cst.
Lehigh	$4 25	$4 50	$4 50	$4 50	$4 75	$3 75
Wilkesbarre	4 25	4 50	4 50	4 50	4 75	3 75

For freight to Elizabethport and to New York see "Freights."

Prices of Foreign Coals.

October, 1869.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, New York.

Liverpool Gas Caking	$ 9	50	@— —
" " Cannel	14	00	@— —
" House "	17	50	@18 00
" " Orrel	16	00	@18 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16	00	@18 00
" " Cannel, "	17	00	@20 00

Per ton 2,000 lbs., delivered.

Prices of Gas Coals.

September, 1869.

PROVINCIAL.

Duty, $1 25.

	Coarse. Gold.	Slack. Gold.
Block House	$1 75	@— 75
Gowrie	1 75	@— 75
Lingan	1 75	@— 75
Sydney	2 13½	@— 71½
Pictou	2 13½	@1 18¾
Little Glace Bay	1 50	@1 00
Caledonia	1 50	@— 75

AMERICAN.

	Coarse. Currency.	Slack. Currency.
Westmoreland Co.	— —	@— —
Despard Coal Co.	$8 50	@8 00
Penn.	— —	@— —
Newburg Orrel Gas	— —	@— —
West Fairmount Gas Coal	— —	@8 00

AT PHILADELPHIA.

Powelton $7 80

Prices at Baltimore—OCT. 1869.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$7 50@8 00
Pittston and Plymouth	7 25@8 75
Shamokin Red or White Ash	6 50@7 00
Lykens Valley Red Ash	7 40@7 80
Trevorton, Red Ash	— —@— —
By retail, per ton of 2240 lbs. delivered	9 00@9 75
Georges Creek & Cumberland f. o. b. at Locust Point for shipping	4 85@5 00
West Fairmount Gas f. o. b.	— —@6 50

Prices at Georget'n, D.C., & Alexandria, Va.

September, 1869.

George's Creek and Cumberland f. o. b. for shipping..$4 75

Prices at Havre de Grace, Md.

October, 1869.

Wilkesbarre and other White Ash for cargoes	$— —@7 25
Lykens Valley	— —@7 50
Shamokin Red or White Ash	— —@7 25
Trevorton and Zebra Valley	— —@7 00

Freights.—OCTOBER, 1869.

TO EASTERN PORTS.	From Philad'a.	From E. Port and Port Johnston.	From Newburg.	From Boatload.
Stamford	$2 00	$1 15	$1 30	$1 25
Norwalk	2 00	1 15	1 30	— —
Bridgeport	2 00	1 15	1 30	1 25
New Haven	2 00	1 15	1 25	1 25
Hartford	2 75	1 50	— —	1 75
New London	2 00	1 15	1 40	1 40
Norwich	2 00	1 25	1 50	1 50
Mystic	2 00	— —	1 45	— —
Stonington	2 00	1 25	1 45	1 35
Sag Harbor	2 00	1 25	1 45	— —
Bristol	2 00	1 40	1 55	1 45
Newport	2 00	1 40	1 55	1 45
Fall River	2 00	1 45	1 55	1 50
Providence	2 00	1 50	1 60	1 50
Dighton	— —	1 50	— —	— —
Warren	— —	— —	1 60	— —
Pawtucket	2 00	— —	1 75	1 65
New Bedford	2 00	1 25	— —	1 50
East Cambridge	2 50	— —	1 85	2 10
Salem	2 50	1 80	2 00	2 00
Newburyport	2 50	2 00	1 85	2 40
Portsmouth	2 00	1 60	1 95	2 10
Rockport	— —	— —	1 90	— —
Saco	2 75	1 75	— —	1 75
Portland	2 00	1 80	1 65	— —
Bangor	2 50	— —	1 75	1 80
Bath	2 50	— —	1 85	— —
Middletown	— —	1 25	— —	— —
Amesbury	2 50	— —	— —	— —
Boston	2 50	1 75	2 00	2 00
Cambridgeport	2 50	— —	1 85	2 05
Taunton	2 50	1 65	1 85	— —
Derby	2 00	1 15	1 90	65
New York	1 55	60	— —	— —
Hackensack	1 75	— —	— —	— —
Jersey City	1 65	60	70	65
TO RIVER PORTS.				
Troy	1 75	1 25	60	65
Albany	1 75	1 24	55	50
Coeyman's	1 60	— —	55	50
Stuyvesant	1 50	— —	50	45
Cocksackie	1 50	— —	45	45
Hudson	— —	90	40	50
Catskill	— —	— —	40	35
Poughkeepsie	1 60	75	30	25
Fishkill	1 60	— —	20	30
Cold Spring	1 60	70	30	50
Haverstraw	— —	50	45	55
Nyack	1 60	50	55	50
Sing Sing	1 60	— —	60	50
Yonkers	— —	40	60	55
New York	1 55	80	70	— —
Saugerties	1 55	— —	35	30
Rhinebeck	1 60	— —	30	35
Rondout	1 40	60	30	25
Tarrytown	1 60	80	60	— —
West Point	1 60	75	30	50

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven	$2 50

From Port Carbon, 8 cents per ton more.

TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Easton	$1 15
C. R. R., N. J., Easton to Elizabethport	1 70
Shipping expenses at Elizabethport	25
Total	$3 10

TO PORT JOHNSON.

L. V. R. R.	$1 15
C. R. R., of N. J.	1 70
Shipping expenses	25
Total	$3 10

TO HOBOKEN.

L. V. R. R.	$1 15
Morris & Essex R. R.	1 80
Shipping expenses	25
Total	$3 20

TO SOUTH AMBOY.

L. V. R. R.	$1 15
B. & D. R. R.	1 10
Cam. & Am. R. R.	50
Shipping Expenses	25
Total	$3 00

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven	$1 70
" Port Carbon	1 70
" Port Clinton	1 70

TO NEW YORK.

From Schuylkill Haven	$2 20

Via Lehigh Canal.

TO PHILADELPHIA.

Lehigh Canal	$1 14
Freight and towage	1 15
Total	$2 29

TO NEW YORK.

Lehigh Canal	$ 71
Morris "	85
Freight	1 70
Towing	10
Total	$3 36

TO JERSEY CITY.

Lehigh Canal	$ 71
Morris "	95
Freight	1 60
	3 26
For re-shipment	30
Total	$3 56

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 45
Towage	20
Total	$3 36

TO NEW BRUNSWICK.

Lehigh Canal	$ 71
Delaware Division Canal	43
Delaware and Raritan Canal	57
Freight	1 20
Total	$2 91

For Re-shipment, 30 extra for shipping, and 10 cents. drawback.

Foreign and Provincial Freights.

September, 1869.

Foreign.	
Newcastle and Ports on Tyne	£15@£18 keel
Liverpool	15s. 17s. ton

TO NEW YORK.

Provincial.	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 25
Port Caledonia	3 25
Little Glace Bay	3 25

TO BOSTON.

Sydney	$2 75
Lingan	3 75
Cow Bay	3 25
Port Caledonia	3 00
Little Glace Bay	2 25

Towing Rates.

TO EASTERN PORTS.

	Per Ton.
To New Haven,	$ 40
Bridgeport,	40
Southport,	40
Westport,	40
Norwalk,	40
Stamford,	40
	Per Boat.
Greenwich,	$70 00
Port Chester,	80 00
Mamaroneck,	70 00
Glen Cove,	55 00
New Rochelle,	55 00
East Chester,	60 00
West Chester,	30 00
White Stone,	30 00
College Point,	25 00
West Farms,	25 00
Flushing,	30 00
Harlem and Mott Haven,	20 00
Port Morris,	20 00
Ninety-first street and Astoria,	16 00

Boats beyond Port Chester, with less than 200 tons, $20 per Boat.

TO RIVER PORTS.

Boats of 150—250 Tons.	Per Ton.
To Manhattanville,	9 cents.
Spuyten Duyvil,	9 "
Yonkers,	10 "
Hastings,	12 "
Piermont,	15 "
Dobbs' Ferry,	15 "
Nyack,	16 "
Tarrytown,	17 "
Sing Sing,	18 "
Croton Landing,	19 "
Haverstraw,	19 "
Verplanck's,	20 "
Peekskill,	20 "
West Point,	21 "
Cold Spring,	21 "
Newburgh,	22 "
Poughkeepsie,	22 "
Rondout,	23 "
Boats of 100 Tons	*Per Boat*
To Manhattanville, and Return,	$12 0
Spuyten Duvvil, "	14 00
Yonkers, "	15 00
Sing Sing, "	25 00
Peekskill, "	25 00

METALS.

IRON.—Duty: Bars, 1 to 1½ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, 9 ₱ ton; Polished Sheet, 3 cents ₱ lb.

Pig, Scotch No. 1, ₱ ton	38 50@38 00
Pig, American, No. 1	39 00@40 00
Pig, American, No. 2	37 —@38 —
Pig, American, Forge	36 —@— —
Bar, Refined, English and American	85 —@— —
Bar, Swedes, assorted sizes (gold)	82 50@87 50
	Store Prices.
Bar, Swedes, ord'y sizes, less 5 ₱ ct.	— —@140 —
Bar, Refined " "	95 —@100 —
Bar, Common " "	87 50@ 90 —
Scroll " "	120 —@130 —
Ovals and half-round " "	120 —@145 —
Band " "	120 —@— —
Horse Shoe " "	120 —@— —
Rods, ⅝ to 3-16 inch " "	140 —@155 —
Hoop " "	125 —@130 —
Nail rod, less 5 ₱ ct.	— 8½@— 9½
Sheet, Russia, as to Nos. (gold)	— 11 @—12
Sheet, Single, D. and T. Common	— 8½@— —
Sheet, Galvanized	List 15@25 ₱ cent, discount.
Rails, English (gold), ₱ ton	— — @57 00
Rails, American, at Works in Pa	— — @77 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2½ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 2¼ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb	— 18 @— 22
English Spring (2d and 1st quality)	— 9 @— 11½
English Blister (2d and 1st quality)	— 11½@— 19
English Machinery	— 12½@— 15
English German (2d and 1st quality)	— 14 @— 16
American Blister "Black Diamond"	— 10½@— 16
American, Cast, Tool do.	— 19 @— —
American, Spring, do.	— 10 @— 13
American Machinery, do.	— — @— 13
American German, do.	— 10 @— 13

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 32
Copper Bolts	— @— 33
Copper Braziers, 16oz. and over	33 @— 35
Copper Nails	38 @— 40
Copper, Old Sheathing, &c., clean	20 @— 21
Copper, Chili Pig	— @— —
Copper, American Ingot	22½@— 22¾
Yellow Metal, New Sheating	— @— 27
Yellow Metal Bolts	— @— 27
Yellow Metal Nails	— @— 27

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2¼ cents ₱ lb.

Galena, ₱ 100 lbs	$— — @— —
Spanish (gold)	6 42½@6 50
German, do.	6 50 @6 62½
English, do.	6 50 @6 87½
Bar (net)	— — @8 75
Pipe and Sheet (net)	— — @8 75

TIN.—Duty: Pig, Bars, and Blocks, 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent. ad val.

	Gold ₱ lb.
Banca	38 @—
Straits	33 @—
English	31½@—

PLATES.

Fair to Good Brands.	*Gold.*	*Currency.*
I. C. Charcoal, ₱ box	$8 37½@8 50	$11 25 @11 75
I. C. Coke	6 75 @7 37½	9 00 @10 25
Coke Terne	— — @6 00	— — @ 8 50
Charcoal Terne	7 75 @8 25	10 50 @11 25

SPELTER.—Duty: In Pigs, Bars, and Plates, $1 50 ₱ 100 lb.

		Gold.
Plates, Foreign	₱ 100 lbs.	$6 12 @6 25
Plates, Domestic	₱ lb.	— 9 @— 12

REMARKS.

IRON.—The demand for both Scotch and American Pig remains quiet; dealers continue to purchase only as immediate wants compel, and, with a large and steadily increasing stock, prices, though not quotably changed, have a softening tendency; the sales are 40 tons Eglinton at $36.75; 40 do. Summerlee and 100 do. No. 1 Allentown, on private terms; and 100 do. Crane Gray Forge at $36.25. There is only a moderate inquiry for new Rails, but prices remain firm; 400 tons old Bridge and T sold on terms we did not learn. Bar from store is dull at our quotations. Sheet is unusually dull.

STEEL.—Steady at our quotations.

TIN.—We have to report further sales of 1,600 pigs Straits Tin—part on spot, balance to arrive—at 33c. gold. Market is now firm at 33½c. English is firm at 32c. on spot and to arrive. Cable advices from England report English at £124, an advance of £1 since our last. Banca firm at 38¼c. here.

COPPER.—Dull at 22¼c. @ 22½c. for Baltimore, 22½c. @ 22¾c. for Lake. We note sales for December and January at 22¾c. for Lake.

SPELTER.—Demand continues good at 6¼c. for Silesian and Slatburg on spot and to arrive in November and December.

LEAD.—Continues scarce, and there is a good demand. The market is firm at 6¼c. @ 6½c. for ordinary foreign.

ANTIMONY.—12¾c. @ 12½c., gold.

SHEET ZINC.—Moderate demand. Ville Montague 8¼c., gold; Silesian 8¼c., gold; American 11½ @ 12c., currency.

MANGANESE.—5c. @ 9½c. per lb.

Mining Stocks.

NEW YORK, Oct. 28, 1869.

The following sales transpired at the Mining Board this morning: Quartz Hill—1,300 at $1.20; 1,000 b 30 at $1.25; Grass Valley—100 at 25c. Yesterday 100 Home sold at $5; 100 Gregory at $1.55; 100 same b 30 $1.50; and 100 Quartz Hill at $1.20.

Our list, published elsewhere, shows a material decline in prices throughout. The following are the latest quotations for Petroleum stocks:—

	Bid.	*Asked.*
Clinton Oil	2 25	—
Brevoort	1 50	2 00
Buchanan Farm	40	48
Home Petroleum	4 90	5 50
Central	60	63
New York and Alleghany	90	1 50
National	75	2 00
United States	63	—
Northern Light	60	80
United Petroleum Farms	13	16
Rynd Farm	29	30
Pithole Creek	1 55	1 75
Bergen Coal and Oil	15	25
Rathbone Oil	25	—
Union	15 00	16 00
Second National	25	—

500 Central sold to-day at 63 cents.

San Francisco Stock Market.

SAN FRANCISCO, October 20, 1869.

	1st Board.	*2d Board.*
Savage	45½	46¾
Crown Point	11	12
Yellow Jacket	39½	40
Kentucky	1 55	1 63
Chollar Potosi	16¼	—
Gould & Curry	74	77½
Ophir	15	14¾
Alpha	13½	—
Belcher	12¾	13½
Imperial	No sales.	
Hale & Norcross	1 38	—

ASSESSMENT.—Belcher Mining Company; $2 50 coin, per share. Delinquent Nov. 22d; sale Dec. 11th, 1869.

The "Pneumatic Dispatch" in Paris.

THE number of telegraph dispatches received at the central station in Paris has increased so considerably that the administration, finding it impossible to send them by porters in all directions to their respective destinations, has adopted a plan which is already in use for the transmission of letters. A continuous series of iron tubes, sixty-five millimeters (two inches and a half in diameter), has been laid down from the Central office, in Rue de Granelle, St. Germain, to the Hotel des Postes, and back again to the central office. This continuous line touches, besides at the Cercle Impérial in the Rue Boissy d'Anglais, then at the Grand Hotel, the Bourse, Hotel du Louvre, and the Hopital de la Charité. The dispatches to be sent off are put into a cylinder fitting loosely into the tube, but provided with a leathern disk, which closes the vertical section of the tube completely. The means of propulsion adopted is both simple and economical. At each station there is a cistern of water and a reservoir of compressed air; the water supplied by the town-pipe merely serves to compress the air, while the latter rushing into the transmission tube as soon as a communication with it is open, drives the cylinder before it with extraordinary celerity. Each cylinder may contain as many as forty dispatches, and a new one is sent off every ten minutes.

Exhibition of a Steam Brake.

AN exhibition of the practical use of the new Loughridge steam brake was made on the Erie Railway a few days ago. The exhibition was made at the request of the managers and judges of the American Institute. The brake is designed for steam cars, and is constructed in such a manner as to enable an engineer to stop a train at pleasure, without the aid of brakemen. It is entirely worked by steam, but is easily attached to the ordinary hand brake without dispensing with the latter. It is claimed to possess several advantages over other brakes, chief among them being the saving of time in stoppages, and prevention of sliding of wheels, together with its great security against accidents. It is also asserted by Mr. Thos. B. Oakley, agent of the Brake Company, that the motion of an express train can be completely checked in about eighteen seconds by means of the new brake. The brake is now in use on the Morris and Essex Railroad, where it is said to give great satisfaction.

The Gold Fields in Scotland.

THE Kildonan diggings are still maintaining a struggle for existence, but it is only of a lingering description, there being now only some fifty diggers at work. They have, however, been pretty successful of late on the new piece of ground allotted to them on the burn beside the Kildonan tent village, but it is being worked out, and there is little hope that the diggers will get new claims marked out to them at the places where they desire when the present are exhausted.

MINING COMPANIES AND STOCK QUOTATIONS.

GOLD AND SILVER COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Alameda Silver		A. Queran, 108 Wall st.	$2,000,000	$10 00		
Ada Elmore	South Boise, Idaho					
American Flag	Nevada District, Col.	P. P. Fullerton, 71 B'way.	600,000	10 00		
Atlantic and Pacific	Humboldt Co., Nevada.					
Bates and Baxter	Colorado			50 00		
Benton	Colorado	W. F. Drake, 15 Broad	500,000	5 00	10	
Briggs	Colorado	J. P. Davies, 19 Cliff	1,000,000	100 00		
Black Hawk	Colorado	C.T.Whittington, 48 Broad	2,500,000	100 00		26
Bobtail	Colorado	J. Stanton, Jr., 25 Nassau	1,000,000			
Bullion Consolid'ed Gold	Colorado					
Burroughs Gold	Colorado					
Church Union Gold	California					
Consolidated Gregory	Colorado				1 45	1 55
Combination Silver	Nevada			100 00	1 50	
Columbia Silver	Austin, Nevada	J. M. Brown, 155 B'way	5,000,000			
Commercial Silver		J. E. Smith, 26 Pine	3,000,000			
Corydon	Gilpin Co., Colorado	J. Samuels, 40 B'way	500,000			
Downieville	Colorado		2,500,000	25 00		
Eagle Gold	Gold Dirt Dist., Col.	J. P. Davies, 19 Cliff	300,000	1 00		
Empire Gold and Silver	BodieBluff,MonoCo.Cal	H. K. Gates, 70 B'way	1,000,000			
Edgehill		A. Fullerton, 71 B'way	10,000,000			
Esperanza Silver		Ezra Clark, Jr., 93 William	400,000			
Fisk Gold		H. Johnson. 195 Fulton	500,000			
Forest Queen		E. B. Beet, 62 B'way	1,000,000			
Golconda Gold	Sherbrooke, C. E.	H. Adams, 71 Broadway	2,000,000			
Gregory	Colorado		1,250,000			
Gunnell Gold	Colorado	J. H. Rolston, 80 B'way	1,000,000	50 00		
Gunnell Central	Colorado	C. B. Bostwick, 16 B'way	3,000,000	10 00		
Gold Rock		R. M. Lockwood. 93 Wall	400,000			
Grass Valley					26	30
International Silver		J. W. Brazier, 26 Pine	600,000			
Hope Gold	Colorado		5,000,000			
Holman			2,000,000	25 00		
Kipp & Buell	Colorado		300,000			
Knickerbocker Gold		J. H. Rolston, 80 B'way	200,000	100 00		
La Crosse Gold	Nevada Dist., Col.	P. P. Fullerton. 71 B'way	1,000,000		16	16
Lander Hill T. & S.	Nevada	M.L.Catherwood,74 B'way	1,000,000			
Lewis Gold	Georgia		1,000,000			
Liberty Gold					1	3
Manhattan Silver	Nevada	M. L. Ogden	400,000			
Maraposa common	California	Jas. H. Ferdon, 34 Wall	12,000,000		8¼	8¾
Mariposa preferred	California	do. do.			16¼	17
Montana Gold		G. De Cordova	400,000		4	7
Montana M. L. & M. Co.	Montana	A. M. Hoyt, 22 William	250,000			
Montrose	Clear Creek Co., Cal.	W. W. Perkins, 71 B'way	1,000,000			
New York Silver	Nevada	Thos. Sproull, 78 B'way	1,500,000			
New York and Austin	Nevada	E. R. Siccomb, 70 Wall	500,000			
New York and Owyhee	Owyhee Co., Idaho		1,000,000			
New York and Eldorado		G. H. Munroe, 10 Wall	2,000,000			
N. Y. & Montana M. & D.	Montana	F. A. Chapman. 20 Nassau	1,250,000			
N. Y. & Silver Peach	Nevada	R. C. Root, 74 B'way	2,000,000			
N. Y. & Utah P. & M.		W. H. Mailler, 108 Wall				
Ophir Gold	Comstock Lode, Nev.	L. C. Warner, 70 B'way	625,000			
Owyhee Gold		W. H. Smith. 43 Ex. Place	1,500,000			20 00
Pahranagat Central	Nevada	J. E. Smith, 25 Pine	6,000,000			
Quartz Hill Gold		F. Bernard	2,500,000		1 15	1 25
Reese River Consol'd	Nevada	W. B. Ogden	6,000,000			
Rocky Mountain	Colorado	S. M. Pond. 70 B'way	500,000	10 00		
Rollins Gold		Thos. Bond. 132 B'way	600,000			
Sensenderfer	Colorado	H. A. Shewill, 19 Broad	1,000,000			
Silver Bend		F. W. Macy. 20 Nassau	1,500,000			
Silver Mt. Silver		H. A. Moen. 71 B'way	1,000,000			
Silver Peak & R. M.	Nevada	W. B. Ogden, 52 Wall	5,000,000			
Smith & Parmelee	Colorado	W. H. Hollister, 6 Broad	2,500,000	20 00	1 85	1 95
Social & Steptoe Con.		T. H. O'Connor, 24 Nassau	450,000			
Standard Gold		C. B. Bostwick, 169 B'way	500,000			
Symonds Forks					38	50
Twin River Silver	Nevada	J. F. R. Hadden. 20 Nassau	800,000	100 00		
Texas Gold	Colorado		500,000	10 00		
Union Gold	Colorado	F. A. Potts. 110 B'way	1,200,000			
Wash. Mill & Silver	Nevada	W. W. Perkins, 71 B'way	300,000			
Wauba Yuma	Arizona	J. W. Silsby, 36 Pine	6,000,000			

COAL AND IRON COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Coal Co		M. A. Myers, 119 B'way	$1,500,000	$25 00		
Ashburton Coal Co		J. T. Robins, 41 Pine	2,500,000			
Block House Coal		D. B. Keeler, Jr., 43 Pine	1,000,000			
Brewster Iron		H. Robison, 165 B'way	1,000,000			
Broad Top Coal & Iron Co	Pennsylvania	B. Love	2,000,000			
Cameron Coal Co		J. A. Simpson, 40 B'way	2,500,000			
Carbon Hill Coal Co		J. Silsby, 36 Pine	1,000,000			
Central Coal		F. P. White, 111 B'way	2,000,000	100 00		
Clifton Iron Co		P. H. Riordan, 34 Pine	1,250,000			
Columbia Iron		F. D. Webb, 77 Cedar	1,000,000			
Consolidation Coal	Maryland	J. S. Mackie, 71 B'way	5,000,000			
Crawford Coal		E. Clapp, Prest, 137 B'way	1,000,000			
Cumberland C. & I. Co.		E. Kisean, 90 B'way	5,000,000		28	28½
Derby Coal Co		W. S. Davison, 71 Broad				
Dover Coal and Iron Co		L. Chase, 88 Wall				
Del. & Hudson Canal Co.			10,000,000	100 00		
Ebervale Coal		G.L Stout, Treas., 111 Br'y	500,000			
Fall River Bituminous		D. T. Brauvelt. 43 Pine	1,000,000			
Farrar Coal		C. H. Jones, 43 Pine	250,000			
Fisher Iron Co		M. Ellis, 19 William	100,000			
Hamp're & Balt. Coal		S. M. Pond, 70 B'way	500,000			
Iron Cliffs Co		C. J. Canda, 52 Wall	1,000,000			
Jackson Iron		G. P. Loyd, 119 B'way	300,000			
Kemble Coal & I. Co		R. A. Wight, 26 Ex. Place	300,000			
Keokuk Coal		J. F. Franklin. 102 B'way	100,000			
Lackawanna I. & C	Pennsylvania	E. C. Lynde, 52 Wall	1,200,000			
Lewis Run C. & I. Co		C. A. Sanborn, 80 B'way	750,000			
Lykens Val. Coal Co		F. A. Platt, 13 William	800,000			
McKean Co. Bit. Coal Co.		J. H. Rolston, 80 B'way	1,000,000			
Lehigh & Susquehanna						
Mahanoy			400,000	100 00		
McNeal C. & I. Co		C. C. Godwin. 71 B'way	500,000			
Mount Riga Iron		G. M. Newton, 42 Cedar	300,000			
New Boston Coal		C. H. Ogden, 55 B'way	2,000,000			
N. Y. Con. C. & I. Co		A. T. Levine, 16 Wall				
N. Y. & Lehigh Coal		T. Simpson, 111 B'way	150,000			
Pacific Coal Co		G. Wrighton. 34 Wall				
Peekskill Iron Co		W. Murdock. 7 Nassau				
Pennsylvania Coal Co		C. H. Mead. 111 B'way	3,200,000	50 00		
Richmond Iron Co		C. H. Smith, 165 B'way	1,000,000			
Scotia Coal Co		I. N. Soper, 42 B'way	2,500,000			
Spring Mt. Coal		C. Runyon, 111 B'way	1,250,000			
Springfield & D'p Run C.		E. D. Webb, 77 Cedar	600,000			
Stout Coal Co		G. S. Comstock, 111 B'way	500,000			
Susquehanna & Wyoming		E. Potter, 40 B'way	1,000,000			
Tannerdale Coal		I. T. Ludlaw, 71 B'way	250,000			
Wash. Mutual Coal		M. C. Baker, 117 B'way	420,000			
West Point Iron Co		R. C. Brock, 110 B'way	500,000			
Wilkesbarre C. & I. Co		W. H. Tillinghast, 80 Br'y	3,400,000			
Wyoming Val. Coal Co		E. Potter, 40 B'way	1,000,000			

COPPER AND LEAD COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Anita Copper	California	J. A. Ferguson, 8 Wall				
Corinth Copper	Corinth, Vermont	S. H. Howard, 191 B'way	$500,000	25 00		
Davidson Copper					3	
Eagle Harbor Copper	Michigan	W. H. Smith, 43 Ex. Place	500,000	25 00		
Evergreen Bluff Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000	25 00		
Globe Copper		R. K. Rickard, 19 Nassau	200,000			
Grand Portage Copper Co		A. S. Kellogg, 22 Pine	500,000			
Guymard Lead		Samuel Vernor. 38 Pine				
Hilton Copper		W. H. Smith, 43 Ex. Place	500,000			
Hope Copper		J. W. Davis, 19 Nassau	500,000			
Hudson River Copper	New York	T. Clarkson, 22 William	1,500,000			
Indiana Copper Co		A. M. Mills, 25 Nassau	500,000			
Isle Royale Copper	Michigan	F. W. Caper, 44 Ex. Place	1,000,000			
Keweenaw Copper	Michigan	F. W. Caper, 44 Ex. Place.	500,000			
Lake Superi'r Silver Lead	Michigan	A. S. Kellogg, 22 Pine	1,000,000			
Omiga Copper	Michigan	S. Cooper, 7 Pine	500,000			
Ridge Copper	Michigan	J. L. Gardiner, Jr., 43 Ex. P	500,000			
Rockland Copper	Michigan	A. Fullerton. 71 B'way	500,000			
St. Joseph Lead	Michigan	J. W. Jones, 6 Broad st.	1,000,000			
St. Marguret Copper		E. P. Sutton, 43 Pine	250,000			
Schoolcraft Copper		R. Walsh, 22 William	500,000			
Superior Copper	Michigan	A. Fullerton, 71 B'way	500,000			
Union Copper		A. S. Kellogg, 22 Pine	500,000			
Vermont Copper	Vermont	J. C. Fly, 191 B'way	500,000			
Wallkill Lead, assd		S. M. Pond, 70 B'way				

MISCELLANEOUS.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Zinc Co		W. E. Lawton, 19 Cliff	$1,000,000			
Bigelow Blue Stone Co		H. Bogardus, 14 Pine				
Clough Stone Co		C. P. Williams, 50 Beekman	500,000			
Covill B. L. M. & M'f. Co		C. R. Bostwick, 302 Pearl	250,000			
Manhattan Marble		H. K. Gates, 70 B'way	300,000			
N. Jersey Zinc Co	New Jersey	A. H. Farlin, 62 Maiden L'e.	1,500,000			

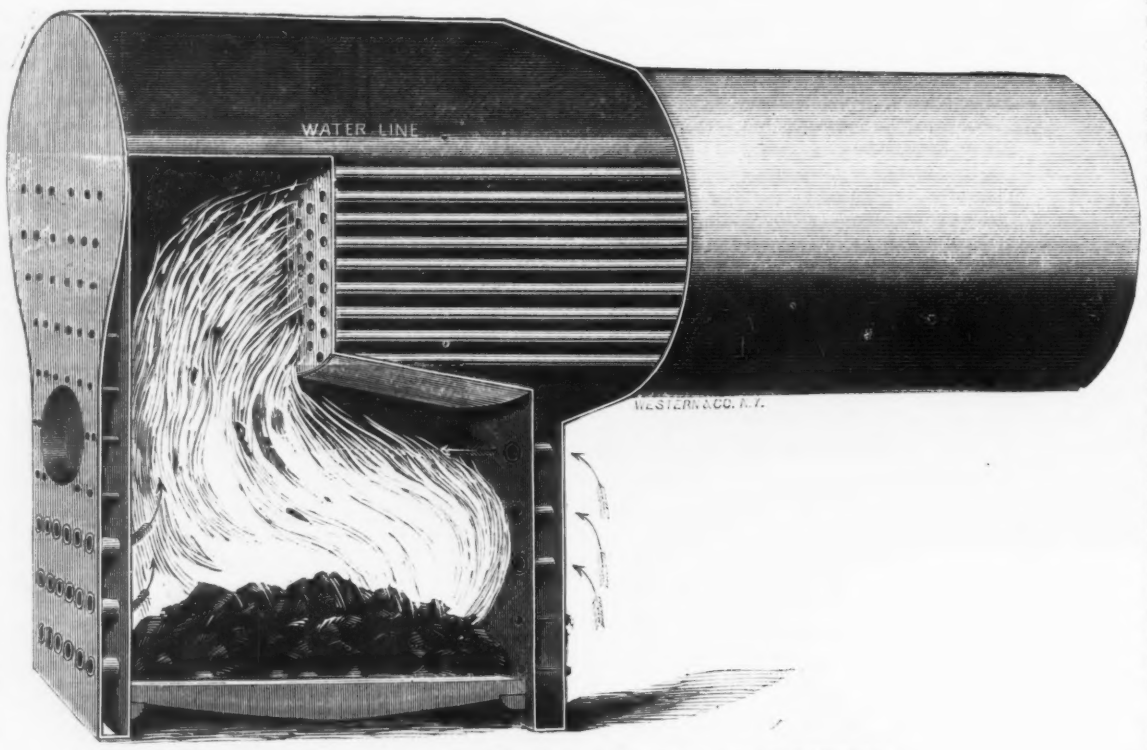
Improvement in Horizontal Tubular Steam Boilers.

The use of so-called locomotive boilers has lately increased to a considerable extent, on the simple ground of their economy of space; such boilers, offering a larger heating surface in proportion to their size, can generate more steam and supply more powerful engines than other boilers of greater dimensions. We have, on a former occasion, spoken of the advantage of having the steam-generating capacity of a boiler abundantly large (see JOURNAL OF MINING, vol. VII., page 57,) and if, in a tubular boiler, the heating surface of the fire-grate can be increased without enlarging the boiler, and at the same time the surface, the result is evidently a very desirable improvement. This has been accomplished by Mr. WILLIAM ZELLNER, in a new arrangement of fire-box, represented in the accompanying engraving. It consists simply (and this simplicity is the beauty of the invention) in elongating the tubes half-way over into the fire-box, or, in other words, elongating the fire-box backward under the tubes, so as to double the capacity of its lower portion. The result is the addition of a crown sheet over the back part of the furnace, which gives, besides the longer tubes, an additional and very effective portion of heating surface exactly over the flame, and in steady contact with it.

The furnace is surrounded in the usual manner, with the boiler water as represented in the figure, and the draft from below through the water, in place of driving the flame and smoke directly forward through the tubes, obliges the flame to play first on the horizontal, slightly-inclined crown-sheet which is over it, then to bend backward and describe the curve of half a circle before entering the tubes, which all possess an additional length equal to that of the crown-sheet just mentioned.

Compelled in this way to circulate in the furnace before rushing out, the flame is longer retained, more of its heat is absorbed, and a great economy is, of course, the result.

As in many furnaces, a great portion of the fuel, by reason of insufficient air, escapes as imperfectly burned carbon, or carbonic oxide, which is a combustible gas, or even as entirely unburned carbon (smoke), a provision has been applied to the furnace of this boiler, to overcome this so common defect. The stays in the lower part of the fire-box, serving to hold together the flat plates of which it is made, are tubes instead of solid rods, so that the air can pass from all sides into the furnace, through these openings. Experience has proved that all that is necessary to produce perfect combustion is to introduce fresh and, if possible, warm air into the heated combustible gases as they rise from a fire. It is clear that the peculiar construction of this furnace is very favorable to this additional improvement, and the inventor has ingeniously and wisely availed himself of the opportunity offered by his special arrangement of the fire-box.



IMPROVEMENT IN HORIZONTAL TUBULAR STEAM BOILERS.

The advantages claimed for this boiler are:

1. The occupation of less space than other boilers of the same steam generating capacity.

2. The consequent use of less material in construction, and therefore greater lightness and smaller cost.

3. The evaporation of more water by a given quantity of coal than other tubular boilers. It has been proved by careful tests that one pound of coal will evaporate in this boiler twelve pounds of water. This is equal to the performance of the best Cornish boilers (see JOURNAL OF MINING, vol. VII., page 57,) which are acknowledged to be the most economical of all in the consumption of fuel, but less economical in the space they occupy, and the amount of mateial used in their construction.

4. Safety. The locomotive form of boiler is by all engineers considered one of the safest, principally because every part is so easily accessible for examination, and easily repaired when injured. In fact, boilers of this kind are more trustworthy than those placed in brick masonry—principally for the reason just mentioned. The trouble connected with bricked-up boilers in case of necessary repairs is too well known by engineers to be dwelt on here.

The exterior form of these boilers is the common cylindrical form, which is acknowledged to be the strongest of all to withstand pressure; and they are built in such a manner that accidents as described and represented in the wood-cuts on page 188 of THE MANUFACTURER AND BUILDER of this year, are out of the question.

Further information relative to this boiler, circulars, etc., may be obtained by addressing MELVILLE C. SMITH, 156 Broadway, New York, or SMITH BROTHERS' Steam Boiler Manufactory, corner of Plymouth and Jay streets, Brooklyn, N. Y.

National Exhibition at Cordova, Argentine Republic.

WE have received from EDWARD F. DAVISON, Esq., Argentine Consul General, the following circular to the merchants and manufacturers of the United States. We take pleasure in calling the attention of our readers to this subject, as we have long been desirous of stimulating in the minds of American merchants and manufacturers an interest in the growing republics of South America, and their profitable commerce:

"The success and happy results of the great exhibitions which have before now taken place, both in Europe and America, and the beneficial influences that those feasts of progress generally have upon the material, industrial, and intellectual development of the people, have induced the Government of the Argentine Republic to make a similar experiment, inviting to the effect natives and foreigners indistinctly, to send the products of art, industry, and science—fruits of their labor and intelligence—to a grand fair, which shall be inaugurated in the City of Cordova, on the 17th of April, 1870.

"Besides the praiseworthy objects that the Argentine Government has in view in decreeing the exhibition, it also intends to celebrate with it the termination of the Central Argentine Railway, which, on that day, will place the cities of Rosario and Cordova, heretofore separated by five days of fatiguing stage-riding, at a few hours' distance, and, by means of the telegraph, in instantaneous communication. An event of such importance for the welfare of the country will not fail to call public attention, and, together with the opening of the exhibition, will attract to the city of Cordova thousands of persons from the Republic and adjacent countries, from all classes of society, professions, and nationalities. A more propitious occasion for American merchants and manufacturers to introduce their goods in that country would be difficult to find; and if it is considered that of the opinion formed at the exhibition in regard to the merits of said goods depends the opening of four great markets for their commerce, viz.: Brazil, Argentine Republic, Uruguay, and Paraguay, very few if any, will commit the error of not sending the products of their industry, thus losing the best opportunity that could be had to secure for themselves the supply of those vast and rich countries, now in active development of their resources and wealth.

"The city of Cordova is situated some four hundred and fifty miles to the northwest of Buenos Ayres, the capital of the Republic—a distance made half by steamer (to Rosario) and half by rail. Sailing vessels leave frequently for Buenos Ayres from New York, Baltimore, Boston, Savannah, Portland, and other ports, and the steamers of the Brazilian line sail from New York on the 23d of each month.

"The following directions for exhibitors have been adopted by the managers of the exhibition:

"ARTICLE I. Each Exhibitor will have the right to the admittance at the Exhibition of a specimen of each machine adaptable to industries, of new introduction in the country, such as those for the manufacture of the various kinds of woven stuffs, paper, sugar, and alcohol; agricultural implements of every description (one of each kind), as well as the machines that save time and labor in this industry, such as steam powers, pumps, those for the preparation of the flax and hemp, thrashers, reapers, corn-shellers, fanners, calenders, etc.; machinery adapted to mining purposes, digging of artesian wells, and the manufacture of bricks and tiles; cast-iron in its application to ornamental and domestic use, and specimens of rural architecture, wooden structures, etc.; models and plans of bridges, pavements, irrigating and draining system, and whatever works may help the improvement of agriculture, mining, and communication.

"ARTICLE II. All the above-mentioned articles will be allowed to pass free of duty through the Custom House of Rosario, where all goods must be addressed, marked [E. N. C.] and consigned to the Provincial Committee at said city, or to the agents of the manufacturers or exhibitors, who shall transfer them in due form to the Committee. This one will receive all goods only at the stores which shall be in readiness at the Custom House for their reception.

"ARTICLE III. The goods will be forwarded to Cordova, via Central Argentine Railway, by the National Government, but should they not be sold in that city the exhibitors will have to take them back at their own expense.

"ARTICLE IV. The necessary room for the accommodation of all the machines, implements, etc., mentioned in Article I., will be furnished free to all exhibitors; and whatever help they may require will be given them, within the limits of the regulations which shall be hereafter enacted for the better management of the exhibition.

"ARTICLE V. On or about the 1st of next December, (in no case after the 15th) all parties desiring to contribute to the exhibition must address to the representatives of the Central Committee accredited to this country, a memorandum of the goods they wish to exhibit, stating at the same time the space (in metres and square yards) required for their accommodation.

"ARTICLE VI. All contributions to the exhibition must be in the city of Cordova on the 15th of March, 1870.

"ARTICLE VII. The persons referred to in Article V., as representing the managers of the exhibition in this country, and to whom all parties may apply for further information, are the following: His Excellency Manuel R. Garcia, Minister Plenipotentiary and Envoy Extraordinary of the Argentine Republic. Address, P. O. box 245, Washington, D. C. Office, 457 I street. Edward F. Davison, Esq., Argentine Consul General. Office 128 Pearl street, New York City. Belisario Roldan, Esq., Special Agent of the Central Committee. At the Consul General's Office. C. H. Trumbull, Esq., 56 South street, New York City. Charles Heinsius, Esq., Argentine Consul, Savannah, Ga. Charles Morton Stewart, Esq., Argentine Consul, Baltimore, Maryland. David D. Stackpole, Esq., Argentine Consul, Boston, Massachusetts. Andreas Spring, Esq., Argentine Consul, Portland, Maine. Nalbo Frasier, Argentine Consul, Philadelphia, Penna.

"ARTICLE VIII. On delivering the goods at Rosario, the agents of the manufacturers will have to state their value, the movable or impulsive power of the steam engines, the quantity of coal they consume, and the amount paid for freight from the port of embarkation; it being the duty of the exhibitors to furnish their articles at the prices then fixed.

"ARTICLE IX. The exhibitors of machinery adaptable to new industries, besides having their agents at the exhibition to take care of the arrangement, good order, and safe-keeping of their machines, must also have such intelligent persons as should be deemed necessary to work them. A written statement of the number of workingmen to be sent must be addressed to one of the parties mentioned in Article VII.

"ARTICLE X. Foreign exhibitors will receive at Cordova the sum of forty dollars gold, as sole compensation for each mechanic they send to the exhibition to show and explain the management and mechanism of their machines.

"ARTICLE XI. It being agreed that all the goods to be exhibited are to be in the City of Cordova on the 15th of March, 1870, (see Article V.,) the exhibitors must send before that date, to one of the representatives of the Central Committee in this country, or to the secretary of the same at Buenos Ayres, a memorandum or descriptive note of all the machines, implements, etc., they wish to exhibit, stating at the same time the peculiarities of their articles, and the residence of the inventors and manufacturers. Should the machines, implements, etc., referred to, contain any new improvements or advantages, the exhibitors may add to the above-mentioned note an illustrative engraving or a detailed description.

"ARTICLE XII. The specifications, which shall be necessarily descriptive of the objects to which they refer, must be concise, not exceeding ten lines. Beyond this limit the exhibitors will have to pay twenty cents, gold, for every extra line published in the general catalogue of the exhibition. Exhibitors wishing to have engravings published in the general catalogue, must send the plates to the Secretary of the Central Committee, together with the note alluded to in the preceding article. Those considered of decided interest will be published at the rate of fifty cents gold, each.

"ARTICLE XIII. The committee will give a number of orders to each exhibitor, the same that shall be affixed to every object, so as to be seen by everybody. This number will correspond with that of the article in the General Catalogue.

"ARTICLE XIV. The Managers will not be responsible for accidents of any kind occurring in or out of the Exhibition Building.

"In order to save the exhibitors any unnecessary trouble or expense, we would advise them not to send any mechanics with their machines until they receive further notice of the day fixed for opening of the Exhibition; for, although the 17th of April, 1870, has been selected for the inauguration, circumstances may, before then, compel the Managers to postpone it for a short time. We will in due time inform the exhibitors of whatever alterations the managers may hereafter make in the directions contained in this circular.

THE ENGINEERING AND MINING JOURNAL.

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ROSSITER W. RAYMOND, Ph. D., Editor,

PUBLISHERS' ANNOUNCEMENT.

THE ENGINEERING AND MINING JOURNAL *is projected in the intent of furthering the best interests of the Engineering and Mining public, by giving wide circulation to original special contributions from the pens of the ablest men in the professions. The careful illustration of new machinery and engineering structures, together with a summary of mining news and market reports, will form a prominent feature of the publication.*

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Steam to Harlem.

THE enormous growth and prosperity of the City of New York is not a mere result of chance. Sometimes a great city is artificially produced, in a spot which nature never intended for such uses. San Francisco is a remarkable instance of this kind. We have never heard any good reason given why the windy sand-hills upon which that city has been huddled should have been preferred to the far more healthful and beautiful, and equally accessible, site of Benicia. Yet Benicia, though the elder town, makes but slow progress, while San Francisco has attained a population of nearly 150,000, and is growing still with a rapidity that defies calculation. Millions of dollars have been expended already in cutting down the hills which hinder the business of the city; and it is too late to save all this money and trouble by the simple expedient of putting the city somewhere else. Chicago, on the other hand, has laboriously hoisted itself with jack-screws out of the swamp in which it was planted, and has expended great skill and ingenuity in the work of draining itself up hill.

Manhattan island, and the shores of Jersey and Long Island adjacent, present a very different picture. No man could devise a more convenient and salubrious site for a great metropolis. The laws of trade and the provisions of nature converge upon this point, and secure for it a combination of advantages which fix forever the supremacy and prosperity of New York. It must be confessed, however, that we have done comparatively little to improve the facilities thus furnished us. While cities like Chicago and San Francisco are triumphantly constructed and improved in spite of nature's opposition, New York suffers many evils in spite of nature's offered help. Our harbor is among the best; our accommodations for shipping are so bad as to earn for us the title of the "pier-less" city. No clouds of dust are whirled in upon us from the sea shore; yet our streets are notoriously filthy. The form of the island is such as to invite a most complete and convenient system of municipal transit; yet it is a matter of more trouble and cost to go comfortably across New York City than to travel from New York to Albany or Philadelphia.

The lower part of Manhattan island is given up already to business; and the prosperity of that business depends largely upon the ease and rapidity with which it can be reached from the localities devoted to residence by merchants or professional men and their customers. Our present means to this end consist of horse railways, omnibuses and hacks, of which we can only say to the new comer, that whichever he takes he will wish he had taken the other. Yet by these clumsy and slow contrivances, and by the old-fashioned method of walking, a vast throng surges daily like a tide into business New York and back again to the suburbs. The fruits of this state of things are beginning to appear. Brooklyn, Jersey City, and other parts of the surrounding country, once merely places of quiet residences, are drawing trade away from New York, and becoming more and more independent of this city. At the same time, thousands of people, finding it easier to cross the North or the East river by ferry than to endure the nuisance and delay of a trip down the island, are forsaking their up-town residences, and moving to Long Island and New Jersey. Is there no remedy?

We have put at the head of this article the words, "Steam to Harlem," because they strike the root of the difficulty. How can we get steam transportation to Harlem? It is surprising, in the first place, that no more use is made of the two great rivers that flank the city. We should have on both these streams swift ferry-boats plying along the city front, and making several landings below Fiftieth street. The ferry-boats on the Thames are acknowledged to be a great convenience to the citizens of London; yet we neglect the far superior opportunities afforded by our two mighty water-ways. The public would patronize cordially a river system of longitudinal transit, provided the streets along our water front were made respectable and clean. Even in spite of the filth and the crowded markets that beset the entrances to the Jersey ferries, they are daily crowded with passengers. But the increasing width of the island towards the north renders the relief to be afforded by water only partial. After all, the great necessity is a central steam railway from the Battery to Harlem. Many plans have been proposed; but that which seems, we think deservedly, to meet with the greatest favor, is the arcade railway project, a full discussion of which is found this week in another part of this JOURNAL. To that article we refer our readers, merely remarking here that we believe the preject to be by far the best suggested, and that we do not see from what quarter, or in what form, a better is likely to arise.

Mining Statistics of Italy.

THE mining industry of Italy possesses high antiquity. Under the later Romans, it was pursued with great energy, and the mining of iron and copper in Etruria, Sardinia, and the Alpine valleys, together with the fabrication of utensils from these metals, has always afforded employment to a considerable population. Recent official publications give us the statistics of the mines and metallurgical establishments of Italy down to 1866, and the exhibit is not unimportant as a means of forming an opinion concerning the future of the regenerated kingdom. According to these documents, there are in Italy 116 mines, of which 44 produce iron, 34 copper, 13 silver and lead, 14 gold, 1 zinc, 4 manganese, while mercury, nickel, and iron-pyrites are represented by two mines each. There are 345 metallurgical establishments, of which 299 are iron-works, and the remainder are devoted to the production, 21 of copper, 10 of silver and lead, 12 of gold, and one each of zinc, mercury, and nickel. The aggregate value of the annual product is about $6,600,000.

Of the 44 iron mines in operation, 29 are in Lombardy and 8 in Piedmont. Of 2,212 laborers employed, 1,888 are adults and 324 children. Of 1,484,719 quintals of iron ore raised, 1,158,583 were exported in a crude state. The island of Elba produced, in the season of 1866-7, 586,240 quintals, and exported 524,580.

Of 299 iron works in the kingdom, 165 are in Lombardy, with 17 blast-furnaces and 111 refining fires. Tuscany has 38 iron works, Piedmont 35, Liguria 23, Campania 17. These establishments use, in the aggregate, 1,190 horse-powers of steam, 4,353 of water, and 45 of animal power—total, 5,588 horse-power. Their total expense in 1865-6 was about $4,000,000, and the value of their products about $5,000,000, leaving a profit of 25 per cent. The iron industry of Italy, measured by the amount of product, is less than that of any other large European State. Spain produces nearly twice as much iron ore; Switzerland, three times as much; Belgium, seven times; Prussia, ten times; France, twenty-five times; and England, nearly seventy-five times, reckoning only what goes to her blast-furnaces.

In 1865-6, there were 34 copper mines in active operation, besides 9 experimenting, and 25 suspended or abandoned. Of 160,757 quintals of ore produced, 98,400 were for home consumption, and 62,357 for exportation. The metallurgy of copper was represented by 29 works, of which 21 were in operation, producing annually metallic copper to the amount of $270,000, and manufactured articles of the value of about $300,000. This showing is not very favorable to Italian copper-mining, as it is evident that so small a product cannot supply even the necessities of the kingdom itself. In fact, the imports of raw and manufactured copper exceed the exports by about a million dollars. France produces not more than one-sixteenth as much copper as Italy; but France is a country notoriously deficient in metallic wealth, while Italy is favored by nature in this respect.

In the production of silver and lead, Italy is not so far behind other countries. The different States of Europe compare in this respect in the proportion of the figures annexed: France, 6; Belgium, 5; Italy, 6; Prussia, 23; Austria, 16; Russia, 9; Spain, 49; England, 63. These figures, multiplied by the constant modulus $100,000, will show nearly the value of the products of lead and silver from argentiferous galena ores in the States named. The quantity of galena mined in the island of Sardinia constitutes four-fifths of the product of Italy. The ancients were acquainted with these mines. Cæsar is said to have exacted from a single small Sardinian city a contribution of 100,000 drams of pure silver. In the thirteenth century the mines were worked by the Pisans. There are now thirteen mines in active operation, 16 experimenting, and 27 suspended or abandoned. The production of 1866 amounted to 160,276 quintals, valued at $600,000.

Gold mining in Italy can hardly be pronounced a remunerative business. There are 12 mines in the province of Novara, and 2 in Alessandria. The total annual product is valued at $48,000, and the cost of labor (at 28 to 40 cents daily fo men, and 16 to 20 cents for boys) amounts to $56,000, leaving a small but irritating "Irish dividend."

Only one zinc mine (in the Province of Belluno) is found in Italy. It produced, during one year, 2,828 quintals (or about 314 tons) of ore, which yielded 800 quintals of zinc, worth $7,200. The importation of zinc in bars, wrought tubes, etc., exceed the exportations by nearly $150,000.

There were, in 1865–6, twenty coal mines in operation—three experimenting and fourteen abandoned. The product of coal was about 46,000 tons, valued at $95,000. The production of peat was 74,000 tons, valued at $100,000. Three hundred and seventy-nine sulphur mines produced 200,000 tons of sulphur; three petroleum deposits yielded 200 tons of petroleum, valued at $7,500, and 55 tons of bitumen, valued at $1,400; two hundred and eighty-one salt works manufactured (251 of them, from sea-brine) 342,000 tons of salt, valued at $560,000. This is pretty cheap for salt; but it must be remembered that English salt can be put at our doors for $5 currency per ton, and the difference between that price and the price we actually pay is caused by the cost of sacks, duties, land transportation and commissions.

We have not space to continue this analysis into the manufactures based upon mineral production, such as those of glass, porcelain, etc. Taken as a whole, the mineral industry of Italy—though still sadly behind the necessities of that kingdom—is at least alive, and may be expected, under the influence of free institutions, the spread of knowledge, and the beneficent effect of wise and liberal mining laws, to develop into a real source of national prosperity and power.

Colorado Ores.

THE Central City *Register* of October 14th, extracts a passage from the correspondence of this journal, which it asserts to have been written by Mr. RAYMOND, and pronounces to contain serious blunders in reasoning. Upon the strength of this, it sneeringly suggests that when the Commissioner again visits that country, he "would do well to spend more time in the mines, and less at the 'commercial metropolis,' forty miles distant."

As the article criticised by the *Register* was not on the editorial page, was addressed as a letter "to the editor," and was signed with the initials of the writer, "A. D. H. JR.," the fairness of attributing it to the Commissioner should be considered dubious, even in the sanctum of the *Register*. Mr. RAYMOND does not sign his articles with other people's initials. But the criticism referred to is as dishonest as its aim. Our correspondent said:

"On comparing the amounts received at Professor HILL'S works, with the estimated amounts crushed by the mills, it would appear that one per cent. of the ore is first class. First class ore, in general, is such as yields at least two ounces of gold to the ton, this being about the lowest grade received at HILL'S works."

Quoting thus far, the *Register* accuses "the Commissioner" of having assumed that "as two ounces of ore is the lowest grade named in Professor HILL'S schedule, *all* the two ounce ore is sold in those works, while the fact is, that a very large proportion of two ounce, or even three ounce, ore is sold to the smelting works, for the reason that a much larger net profit is realized by milling it, and selling the concentrated tailings." "Such a judgment," it complacently adds, "must have been hastily formed, and with a feeble comprehension of the facts."

Why did the *Register* carefully omit the remainder of the paragraph which it condemns? The very next sentences explain that second class ore may run higher than this, if the owners choose to have it milled instead of smelted, and that the terms first and second class are used by the writer, as they are commonly used in Central City, to designate merely ores sent to Professor HILL, and ores stamped in the mills. This covers the whole ground; and the critic has actually stolen from the article the statement which he impudently advances as a correction. This seems to us a "feeble comprehension," amounting indeed to a dislike, of "facts."

We cannot undertake, in view of this apparently fundamental and moral disqualification, to instruct the editor of the *Register* how to become a fair and trustworthy critic; but if at any time he should conceive a serious desire to educate himself in that direction, we recommend for his diligent use the following elementary maxim: Before forming a "hasty opinion" of an article and its author, find out, first, who is the author, and, secondly, what is in the article.

We have not attempted to identify the author of the attack above quoted; but we confess to a feeling of pleasure at discovering, in another part of the same paper, that the mining editor, who, we believe, is an intelligent and respectable gentleman, has "gone East," and is therefore not responsible for the contents of its columns.

The Avondale Fund.

IT is reported that out of $150,000 subscribed to this fund, not much more than three-fifths have been collected. This ought to be followed up. We should like to have the names of those who have subscribed without paying. That is a kind of philanthropy which we "would not willingly let die"—till we have had a chance to bid it a suitable farewell. Perhaps we might recognize some of the names as already distinguished in this line. People who subscribe freely, and fail to pay, are not unknown in newspaper offices.

Küstel's New Process.

WE publish this week the first of two articles by Mr. GUIDO KÜSTEL, on his new method of treating refractory silver ores. The subject is one of great interest, and Mr. KUSTEL is qualified by scientific ability and long experience to treat it thoroughly.

The American Fire-Alarm Telegraph.

THE Fire-Alarm Telegraph consists, essentially, in two parts: First—The *Signal Apparatus and Wires*, by which information is conveyed from any part of the city to the central office. Second—The *Alarm Apparatus and Wires*, by which the alarm bells are struck from the central office by the operator on duty, and without the need of men at the bell-towers. There are *Signal Boxes* distributed over the city in such a way that no point is more than 250 feet from a box, from any one of which information of a fire can be sent instantly to the central office, simply by turning a crank or moving a lever. The operator at the central office—the sole watchman of the system—is then able to strike the number of the station on one or all of the alarm bells throughout the city, and also to tap in all the signal boxes the number of the station or signal box from which the alarm came. At the same time he strikes a gong in any or all of the engine-houses. Thus the engines are directed at once to the very box from which the alarm was sent. It has been found, practically, that the time between the discovery of a fire and its definite announcement by the alarm bells and at the engine-houses is, on an average, less than half a minute, and often not fifteen seconds! The District Alarm, with look-out men, rarely gives an alarm *until the fire has made sufficient progress to be seen from the bell towers;* whereas the Fire-Alarm Telegraph notifies the department within half a minute after the discovery of a fire wholly confined within a room or cellar, and the fire department frequently arrive before the flames are visible outside the building. From the central office, wires run to every part of the city, connecting with the signal boxes and alarm bells, and returning again to the office. These wires form the "Signal Circuits" and "Alarm Circuits," and are carried on poles or over the houses. The circuits differ from other telegraphs, in being completely metallic, the ground not forming any part of the circuit. To insure the constant attendance and vigilance of the operator, it is made a part of his duty, as often as is deemed necessary, to test the batteries, &c., &c., the performance of which is recorded upon a disc of paper, inclosed in a case beyond his reach.

By what precise mechanism are the bells and gongs struck at the alarm stations and engine houses? The hammers may be raised above the bells by any convenient force, as by a weight or by a water engine, commonly called a "water meter;" but experience has proved that the positive power of a weight is best, because most certain and uniform. The power of water is, however, used advantageously to wind up the weights, which it does automatically, by a very ingenious contrivance. But how are hammers of one or two hundred pounds weight to be tripped by telegraph? This is effected by Mr. Farmer's electro-magnectic escapement, in which the electro-magnet, when it becomes charged by the galvanic influence received from the central station, attracts the little piece of soft iron or armature in front of it, which supports a small lever, poised nearly vertically, and weighted with a little ball at its upper end. This lever and ball, when tripped by the withdrawal of the armature, acquires sufficient momentum to strike up the *detent* of the combination of levers, which, by their action, raise the hammer and then allow it to fall. A single blow of the hammer follows each electrical impulse sent from the central station, and the same movement raises, also, the fallen lever into its place, and catches it again on the armature, ready to be tripped for another blow.

Let us see now, the analogy between the municipal telegraphic system and the nervous organization of the individual. A coal of fire falls upon my hand; one of the nervous extremities, or papillæ, the "signal box" of the part, sends instantly its own special signal, by means of a nerve of sensation or signal wire, to the brain, where the existence and locality of the lesion is at once recognized. An act of intelligence and volition ensues. The watchman of the central station, or brain, does his part. An impulse to motion is sent out over the proper motor nerves, or alarm wires, and muscles are called into play in a suitable manner to remove the cause of injury, just as the electro-magnetic muscles and iron limbs in the bell-towers are thrown into suitable and related action to the original cause and place of alarm.

By means of this ingenious application of mechanical and electrical forces, all the bells of the city might be rung in measured strokes from the beginning to the end of the year, by the pressure of one man's finger in a distant room.

The mechanism of the fire telegraph is arranged and disposed for the purpose of preserving wealth, the fruit of human industry, and Nature's bounty from destruction. But more than this, it is a higher system of municipal organization than any hitherto proposed or adopted. In it the New World has taken a step in the forms of civiiization in advance of the Old.—*Insurance Monitor.*

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Aug. 31-tf

DIVIDENDS.

OFFICE OF THE WILKESBARRE COAL AND IRON COMPANY, 80 BROADWAY, NEW YORK, October 20, 1869.

A Dividend of FIVE PER CENT., free from Government tax, payable on and after November 15th, 1869, has this day been declared. The books of the Company for the transfer of stock will be closed from November 1st to 15th inclusive. By order of the Board of Directors.

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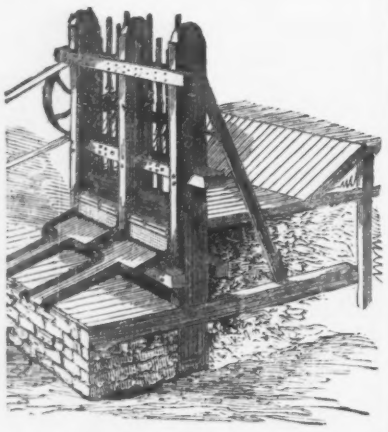

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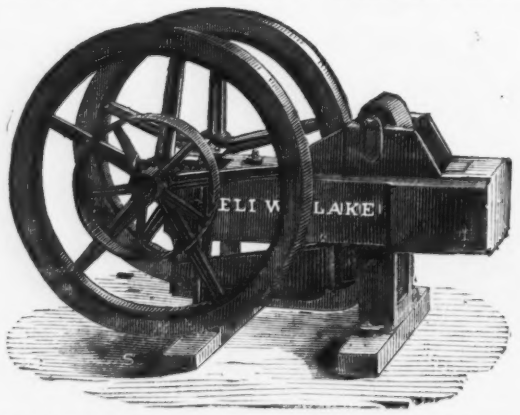

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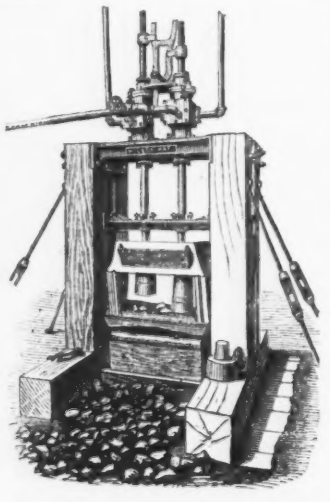

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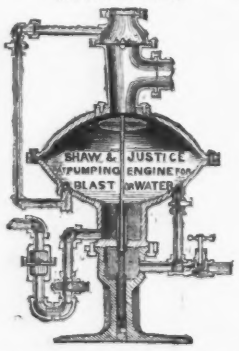

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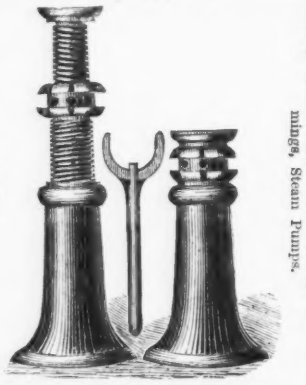

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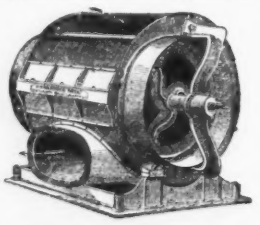

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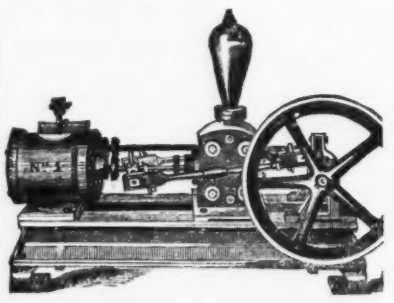

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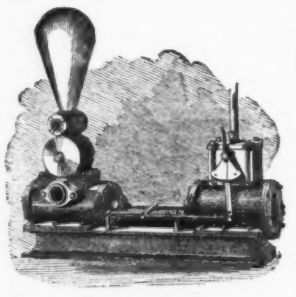

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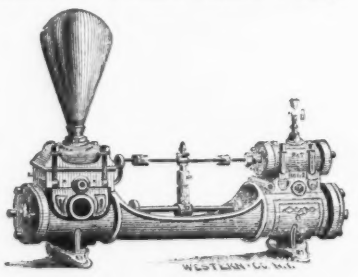

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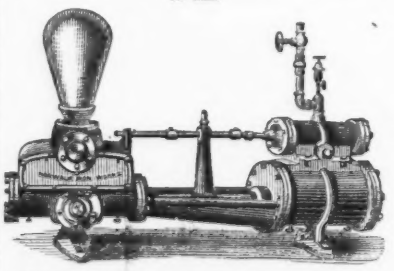

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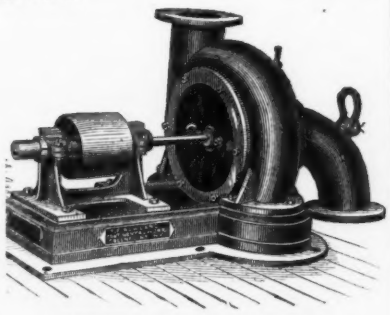

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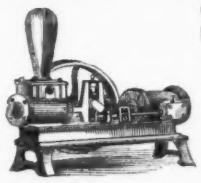

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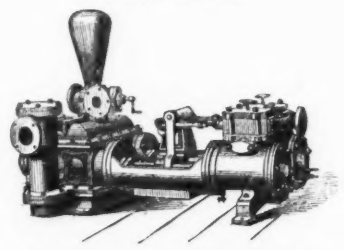

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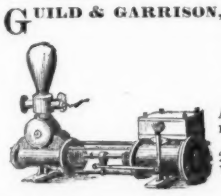

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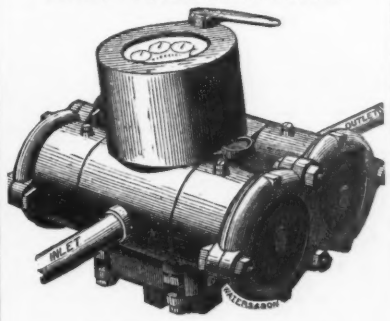

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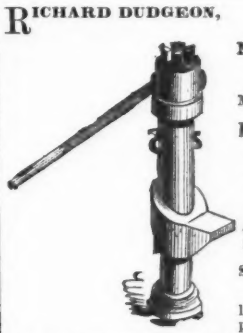

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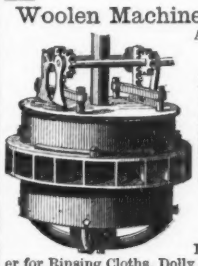


And Manufacturers of Upright and Circular Saw Mills,

BREAST AND TURBINE

WATER WHEELS,

Regulators, Elevators, Shafting, Gearing, Pulleys, Gate Screws for Hoisting Gates, Woodworth's Planing Machines, Grist Mills, etc., etc.

Patent Rotary Fulling Mills,

Hammer Falling Stocks, Fulling Mills, Dusters, Washer for Rinsing Cloths, Dolly Washers for Hosiery Goods, Wool Washers for Washing Wool, Gigs, Dye Tubs, Blue Vats, and Steam Boxes.

Also Iron Founders. Every description of Casting furnished at short notice. All Machines and Castings furnished at this establishment warranted.

june5-tf-q ORANGE, MASS.

MACHINISTS' SUPPLIES.

ANDREWS' PATENT

Engines, Boilers, Pumps, Hoisters,

OSCILLATING ENGINES, run at great speed. Sizes 1-2 to 250 Horse-Power.

SMOKE-BURNING AND SUPER-HEATING BOILERS are economical and Safe.

CENTRIFUGAL PUMPS, pass Sand, Coal, Corn, Gravel, etc., without injury. Capacity 90 to 40,000 gallons per minute.

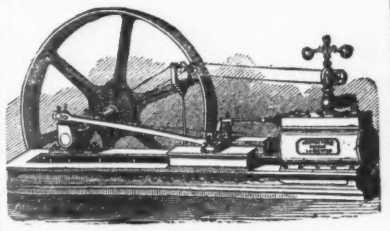
HOISTING MACHINES, run without noise; speed changed or reversed instantaneously.

ALL COMPACT, LIGHT, AND DURABLE.

Address Manufacturers

WM. D. ANDREWS & BRO.,

july 1 1-y 414 Water street, New York.



TODD & RAFFERTY,

GENERAL

MACHINERY MERCHANTS, ENGINEERS, AND MACHINISTS,

Manufacturers of Stationary and Portable Steam Engines and Boilers; also Flax, Hemp, Tow, Oakum, and

ROPE MACHINERY,

MILL GEARING,

SHAFTING.

Lathes, Planers, Drills, Chucks, etc. Iron and Brass Castings. Judson & Snow's Patent Governors constantly on hand.

OFFICE AND WAREROOMS, NO. 10 BARCLAY STREET, N. Y.

Office and Works, Paterson, New Jersey.

JOSEPH C. TODD. oct-27-tf. PHILIP RAFFERTY.

INCRUSTATIONS

Prevented by WINANS' BOILER POWDER, 11 Wall Street, New York.

T. S. POST & Co., Benham, Texas, say: "Since using Winans' Powder, we save ONE cord of wood per day (one-half our fuel), and have better steam, and would not be without the article for ten times its cost."

The Cleveland (Ohio) Paper Mills removed scale 22 inches long by 9 wide and 1¼ inch thick.

GAYLORD & Co., Portsmouth, Ohio, have used it for 10 years (3,000 pounds yearly) without injury.

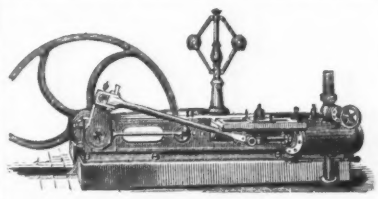
Beware of Imitations. H. N. WINANS,

jan-tf 11 Wall street, New York.

ENGINES, IRON WORK, ETC.

RIDER'S PATENT CUT-OFF ENGINES,

HORIZONTAL and VERTICAL,

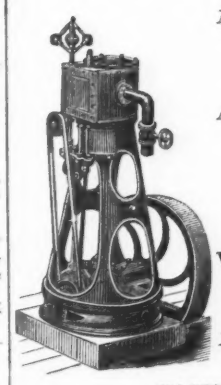


BUILT BY THE

DELAMATER IRON WORKS,

Foot of West Thirteenth Street,

NEW YORK CITY.



AND BY THE

Albany St. Iron Works,

Corner of

Washington and Albany Streets,

NEW YORK CITY.

HANDREN & RIPLEY,

Proprietors.

Also, BOILERS, TANKS, and CASTINGS, of all descriptions. nov 2:1y

THE NOVELTY IRON-WORKS.

(Foot of East Twelfth street.)

BRANCH OFFICE, Nos. 77 AND 83 LIBERTY STREET,

Manufacture

ACHITECTURAL IRON-WORK

OF ALL KINDS.

feb 1-1y

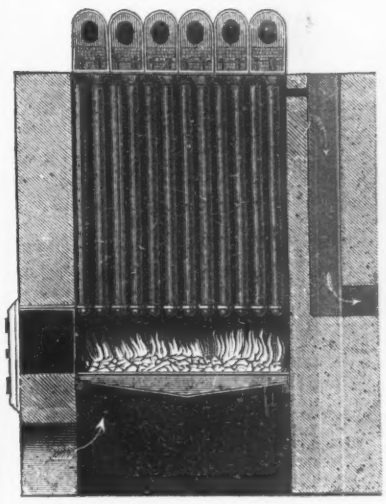
STEAM BOILERS.

THE STEAM GENERATOR

Manufacturing Company of Penn.

This Company is now prepared to furnish

WIEGAND'S



Patent Improved Steam Generator,

Of any power required, upon two weeks' notice. They have been introduced in this city and thoroughly tested, with most satisfactory results, and are sold under Guarantee of Absolute

Safety from Destructive Explosion.

They are cheaper in first cost and in expense of erection, more economical in fuel, durable and convenient in use, than any other apparatus for generating steam. For Mining purposes it is unequalled, owing to the facility with which it can be transported and erected.

Office of the Company, (Rooms Nos. 5 and 6,)

523 Walnut street, Philadelphia, Pa.

Directors—NELSON J. NICKERSON, WALTER J. BUDD EMMOR WEAVER.

NELSON J. NICKERSON, President.

EDWARD H. GRAHAM, Sec. and Treas. sep14-1y

ROOT'S WROUGHT IRON SECTIONAL

SAFETY BOILER.

Over 100 sold—tested to 300 lbs., no large sheet-iron shell to explode. Economical and durable. All sizes on hand. Also, Steam Engines, Steam Pumps, etc. Send for pamphlets and price lists.

JOHN B. ROOT,

apr24-6m-os 95 and 97 Liberty Street, New York.

WORCESTER STEAM BOILER WORKS, manufacturers of

LOCOMOTIVE, FLUE AND TUBULAR BOILERS OIL AND WATER TANKS, GASOMETERS, Etc.

WORCESTER, MASS.

N. B.—Boilers inspected and repaired in the best manner and at short notice.

may15-tf CHAS. STEWART, Sup't. D. M. DILLON, Treas.

SAWS AND PLANERS.

CIRCULAR SAWS WITH EMERSON'S PATENT MOVEABLE TEETH.

These Saws are meeting with unprecedented success, and their great superiority over every other kind, both as to efficiency and economy, is now fully established.

Also,

EMERSON'S PATENT PERFORATED CIRCULAR AND LONG SAWS,

(All Gumming avoided,) and

EMERSON'S PATENT ADJUSTABLE SWAGE,

for Spreading, Sharpening, and Shaping the teeth of all Saws. Price, $5. Manufactured by the

AMERICAN SAW COMPANY.

Office No. 2 Jacob St., near Ferry St., New York.
Factory, Trenton, N. J. Branch Office for Pacific Coast, No. 606 Front St., San Francisco, Cal.
Send for new Descriptive Pamphlet and Price List.
july1-1y

RICHARDSON, MERIAM & CO., Manufacturers of the latest Improved Patent.

DANIELS' & WOODWORTH PLANING MACHINES MATCHING, SASH AND MOULDING, TENONING, MORTISING, BORING, SHAPING, VERTICAL AND CIRCULAR RESAWING MACHINES.

Saw Mills, Saw Arbors, Scroll Saws; Railway, Cut-Off, and Rip-Saw Machines; Spoke and Wood Turning Lathes, and various other kinds of Wood-working Machinery.

Catalogues and Price Lists sent on application.
Manufactory, Worcester, Mass.
Warehouse, 107 Liberty Street, New York.
apr24-1y-q

ROLLSTONE MACHINE WORKS, Manufacturers of

BAND SAWS, ROTARY BED PLANERS,

Matching Machines. Moulding Machines, Saw Benches, Chair Lathes, Self-Oiling Pulleys, etc.

june5-tf FITCHBURG, MASS.

RAILROADS.

LEHIGH & SUSQUEHANNA RAILROAD.
(LEHIGH COAL AND NAVIGATION CO.)

Summer Arrangement.

On and after Monday, July 12, 1869, Passenger Trains on the Lehigh & Susquehanna Railroad will run as follows:

DOWN TRAINS.

	No. 1. A.M.	No. 3. A.M.	No. 5 P.M.	No 7. P.M.
Leave Green Ridge	9:05	7:00	1:00	5:15
Scranton	9:10	7:05	1:05	5:20
Pittston	9:36	7:35	1:35	5:52
Wilkesbarre	10:00	8:00	2:00	6:17
White Haven	11:23	A.M.	P.M.	P.M.
Mauch Chunk	12:00			No. 9. A.M.
	1:03			6:50
Catasauqua	2:01			8:04
Allentown	2:10			8:15
Bethlehem	2:20			8:30
Easton	2:48			9:05
Phillipsburg	2:52			9:10
Philadelphia	4:45			A.M.
Arrive New York	6:30 C.R.R.			
	9:40 M. & E.R.R. P.M.			

UP OR NORTHWARD TRAINS:

	No. 2. P.M.	No. 10 A.M.
Leave New York	9:00 C. R. R.	
	8:30 M. & E. R. R.	
Philadelphia	9:45	
Phillipsburg	11:50	7:00
Easton	11:55	7:04
Bethlehem	12:23	7:36
Allentown	12:36	7:50
Catasauqua	12:53	8:04
Mauch Chunk	2:05	9:20

	No. 4. A.M.	No. 6. P.M.	No. 8. P.M.
White Haven	3:23	P.M.	P.M.
Wilkesbarre	5:00	8:30	2:25	6:45
Pittston	5:25	8:55	2:50	7:10
Scranton	5:56	9:26	3:20	7:40
Arrive Green Ridge	6:00	9:30	3:25	7:45
	P.M.	A.M.	P.M.	P.M.

Connections.

DOWN TRAIN No. 1, makes close connection at Penn Haven with Lehigh Valley Railroad, for Beaver Meadow, Hazleton and Mahanoy City.

DEL. & HUDSON CANAL CO., R.R.—Up trains Nos. 4 & 6, and down trains Nos. 1 and 7 connect at Green Ridge with trains on Delaware & Hudson Railroad, to and from Carbondale.

NORTH PENNA. R.R.—Down train No. 1, and up train No. 0 connects at Bethlehem with trains on North Pennsylvania R.R, arriving at Philadelphia at 4:45 P.M. Returning, leave Philadelphia for Scranton, Wilkesbarre and Mauch Chunk at 9:45 A.M.

LEHIGH & LACKAWANNA R.R.—Down train Nos. 1 and 0, and up train Nos. 2 and 0 connect at Bethlehem with Lehigh & Lackawanna R. R. for Bath and Chapman Quarries. Returning leaves Bath at 7:00 A.M.

MORRIS & ESSEX R. R.—Down train No. 1 and 0 connect at Easton with Morris & Essex Railroad for Newark and New York. Returning leave New York (Barclay street,) for Scranton, Wilkesbarre and Mauch Chunk at 8:00.

CENTRAL RAILROAD OF NEW JERSEY.—Down trains Nos. 1 and 9 connect at Phillipsburg with trains for New York. Returning, leave New York (foot of Liberty street,) for Scranton, Wilkesbarre and Mauch Chunk at 9:00 A. M.

BELVIDERE & DELAWARE R.R.—Down train No. 0 and up train No. 2 connect at Phillipsburg with Belvidere & Delaware Railroad to and from Trenton and Philadelphia.

MENDES COHEN,
Superintendent.

LEHIGH VALLEY RAILROAD.

ON AND after June 1, 1869, trains on the Lehigh Valley Railroad will run as follows:

DOWN TRAINS.

	A.M	P.M.
Leave Tunkhannock	6 20	
L. & B. Junction	7 30	1.15
Pittston	7.40	1.25
Wilkesbarre	8.00	1.45
White Haven	9 25	3.08
Mauch Chunk	10.35	4.20
Allentown	11.43	5.50
Bethlehem	11 55	6.05
	P.M.	
Easton	12.25	6.35
Philadelphia	2.10	8.35
Arrive New York	3.50	9.00

UP TRAINS.

	P. M.	M.
Leave New York	6.50	12.00
		P. M.
Philadelphia	7.45	1.45
Easton	10.00	3.25
Bethlehem	10.30	4.00
Allentown	10.45	4.20
	M.	
Mauch Chunk	12.00	5.45
	P. M.	
White Haven	1.32	7.18
Wilkesbarre	2.50	8.35
Pittston	3.10	8.55
L. & B. Junction	3.20	9.05
Arrive Tunkhannock	4.30	

☞ No change of cars between Scranton and New York, or between Scranton and Philadelphia.

ROBERT H. SAYRE, Sup't and Eng.
H. STANLEY GOODWIN, Ass't Gen. Supt.
June 1, 1869.

DELAWARE, LACKAWANNA & WESTERN R. R.—Morris & Essex Division.

Summer Arrangement,

Commencing Monday, April 5, 1869, and running on the following time until further notice.

	L. and Express. A. M.	Scranton. Mail. A.M.	Scranton, Express. P. M.
Leave Easton	6.55	11.30	5.30
Washington	7.28	12.10	6.15
Hackettstown	7.48	12.36	6.45
Dover	8.30	1.24	7.30
Rockaway		1.34	
Morristown	9.00	2.00	8.00
Orange		2.50	8.50
Newark	9.50	3.00	9.00
Arrive New York	10.25	3 35	9.40
	A.M.	P. M.	P.M.

RETURNING.

	P. M.	A. M.	A.M.
Leave New York	4.00	7.00	8.30
Newark	4.40	9.05	7.40
Orange			7.53
Morristown	5.33	10.00	8.45
Rockaway			9.09
Dover	6.00		9.20
Hackettstown	6.42	11.05	10.08
Washington	7.02	11.25	10.33
Arrive Easton	7.35	11.57	11.10

Connections.

At Washington, with Delaware, Lackawanna & Western Railroad, for Water Gap, Stroudsburg, Wilkesbarre, Carbondale, Scranton and Great Bend.

At Easton, with Lehigh Valley and Lehigh & Susquehanna Railroads for Bethlehem, Allentown, and Mauch Chunk.

S. SCHOCH,
R. A. HENRY, Ass't Superintendent.
Gen. Passenger Agent.
Hoboken, N. J., April 21, 1869.

RAILROADS.

READING RAILROAD.

GREAT TRUNK LINE from Philadelphia to the interior of Pennsylvania, the Schuylkill, Susquehanna, Cumberland and Wyoming Valleys, the North, Northwest, and the Canadas.

Summer Arrangement of Passenger Trains, July 12, 1869.

Leaving the Company's Depot, Thirteenth and Callowhill streets, Philadelphia, at the following hours:

MORNING ACCOMMODATION.

At 7.30 A.M. for Reading and all intermediate stations and Allentown. Returning, leave Reading at 6.30 P. M., arrive in Philadelphia 9.15 P.M.

MORNING EXPRESS.

At 8.15 A. M., for Reading, Lebanon, Harrisburg, Pottsville, Pinegrove, Tamaqua, Sunbury, Williamsport, Elmira, Rochester, Niagara Falls, Buffalo, Wilkesbarre, Pittston, York, Carlisle, Chambersburg, Hagerstown, &c.

The 7.30 A. M. train connects at READING with East Pennsylvania Railroad trains for Allentown, &c., and the 8.15 A.M. train connects with the Lebanon Valley train for Harrisburg, &c.; at PORT CLINTON with the Catawissa Railroad trains for Williamsport, Lock Haven, Elmira, &c.; at HARRISBURG with Northern Central, Cumberland Valley, and Schuylkill and Susquehanna trains for Northumberland, Williamsport, York, Chambersburg, Pinegrove, &c.

AFTERNOON EXPRESS

Leaves Philadelphia at 3.30 P.M. for Reading, Pottsville, Harrisburg, &c., connecting with Reading and Columbia Railroad trains for Columbia, &c.

POTTSTOWN ACCOMMODATION

Leaves Pottstown at 6.25 A.M., stopping at intermediate stations; arrives in Philadelphia at 8 40 A. M. Returning, leaves Philadelphia at 4.30 P. M., arriving in Pottstown at 6.40 P.M.

READING ACCOMMODATION

Leaves Reading at 7.30 A.M., stopping at all way stations; arrives in Philadelphia at 10.15 A.M.

Returning, leaves Philadelphia at 5.15 P. M.; arrives in Reading at 8.00 P.M., and connects with Market Train for Pottsville.

Trains for Philadelphia leave Harrisburg at 8.10 A.M. and Pottsville at 8.45 A.M., arriving in Philadelphia at 1.00 P.M. Afternoon trains leave Harrisburg at 2 05 P. M. and Pottsville at 2.45 P.M., arriving at Philadelphia at 6.45 P. M.

HARRISBURG ACCOMMODATION

Leaves Reading at 7.15 A.M. and Harrisburg at 4.10 P.M. Connecting at Reading with Afternoon Accommodation south at 6.30 P.M., arriving in Phildelphia at 9.15 P. M.

MARKET TRAIN, with a passenger car attached, leaves Philadelphia at 12.45 P. M. for Pottsville and all way stations; leaves Pottsville at 5.40 A.M., connecting at Reading with Accommodation Train for Philadelphia and all way stations.

All the above trains run daily, Sundays excepted.

Sunday trains leave Pottsville at 8.00 A.M. and Philadelphia at 3.15 P. M.

Leave Philadelphia for Reading at 8.00 A.M. Returning from Reading at 4.25 P.M.

CHESTER VALLEY RAILROAD.

Passengers for Downingtown and intermediate points take the 7.30 A.M., 12.45 and 4 30 P.M. trains from Philadelphia, returning from Downingtown at 6.10 A.M., 1.00 and 5.45 P.M.

PERKIOMEN RAILROAD.

Passengers for Skippack take 7.30 A.M., 4 30 and 5.15 P.M. trains from Philadelphia; returning from Skippack at 6.15, 8.15, A. M. and 1.00 P. M. Stage lines for various points in Perkiomen Valley connect with trains at Collegeville and Skippack.

NEW YORK EXPRESS, FOR PITTSBURG AND THE WEST.

Leaves New York at 9.00 A. M. and 5.00 and 8.00 P.M., passing Reading at 1.05 A.M., and 1.50 and 10.19 P.M., and connecting at Harrisburg with Pennsylvania and Northern Central Railroad Express Trains for Pittsburg, Chicago, Williamsport, Elmira, Baltimore, &c

Returning, Express Train leaves Harrisburg on arrival of Pennsylvania Express from Pittsburg at 2.35 and 5.20 A. M., 10.55 P. M. passing Reading at 4.30 and 7.05 A. M. and 12.50 P. M.; and arriving at New York at 11.00 A. M. and 12.20 and 5.00 P. M. Sleeping cars accompany these trains through between Jersey City and Pittsburg without change.

A mail train for New York leaves Harrisburg at 8.10 A.M. and 2.05 P. M. Mail train for Harrisburg leaves New York at 12 noon.

SCHUYLKILL VALLEY RAILROAD.

Trains leave Pottsville at 6.30 and 11.30 A. M. and 6 40 P.M., returning from Tamaqua at 8.35 A. M. and 2.15 and 4.15 P.M.

SCHUYLKILL AND SUSQUEHANNA RAILROAD.

Trains leave Auburn at 6.25 A. M. for Pinegrove and Harrisburg, and at 12.10 P.M. for Pinegrove and Tremont; returning from Harrisburg at 6.20 P. M., and from Tremont at 6.45 A.M. and 7.40 P.M.

CENTRAL RAILROAD OF NEW JERSEY.

—Passenger and Freight Depot in New York, foot of Liberty street; connects at Hampton Junction with the Delaware, Lackawanna and Western Railroad, and at Easton with the Lehigh Valley Railroad and its connections, forming a direct line to Pittsburgh and the West without change of cars.

ALLENTOWN LINE TO THE WEST.

Three Express Trains to the West, except Sundays, when one train in the evening.

Sixty miles and three hours saved by this line to Chicago, Cincinnati, St. Louis, &c, with but one change of cars.

Silver Palace cars through from New York to Chicago.

SUMMER ARRANGEMENT.

Commencing August 16, 1869.—Leave New York as follows:

6.55 A. M.—For Easton, Bethlehem, Mauch Chunk, Williamsport, Wilkesbarre, Mahanoy City, Tuktannock, 7.15 A. M.—For Somerville.

8.30 A.M.—For Flemington, Junction, Stroudsburg, Water Gap, Scranton, Kingston, Pittston, Great Bend, 9 A. M.—WESTERN EXPRESS.—For Easton, Allentown, Harrisburg and the West, without change of cars to Cincinnati or Chicago, and but one change to St. Louis. Connects at Harrisburg for Erie and the Oil Regions. Connects at Junction for Stroudsburg, Water Gap, Scranton, &c. Connects at Phillipsburg for Mauch Chunk, Wilkesbarre, &c.

12 M.—For Flemington, Easton, Allentown, Mauch Chunk, Wilkesbarre, Reading, Columbia, Lancaster, Ephrata, Litiz, Pottsville, Scranton, Harrisburg, &c.

3.30 P. M.—For Easton, Allentown, Mauch Chunk and Belvidere.

4.30 P. M.—For Somerville.

5.00 P. M.—CINCINNATI EXPRESS.—For Easton, Bethlehem, Allentown, Reading, Harrisburg, Pittsburgh, Chicago and Cincinnati. Sleeping Cars to Pittsburgh and Chicago. Connects at Junction with Delaware, Lackawanna and Western Railroad for all Stations to Scranton.

5.25 P. M.—For Somerville and Flemington.

6 P. M.—For Easton and intermediate stations.

7.00 P. M.—For Somerville.

8.00 P. M.—WESTERN EXPRESS TRAIN.—For Easton, Allentown, Reading, Harrisburg, Pittsburgh and the West—connects at Harrisburg with train for Williamsport, Erie, &c.

8.10 P. M.—EMIGRANT—Stopping only at principal stations.

9.00 P. M.—For Plainfield.

11.45 P. M.—For Plainfield on Wednesdays and Saturdays only.

Sleeping cars through from Jersey City to Pittsburgh every evening.

Trains leave for Elizabeth at 5.45, 6.30, 6.55, 7,15, 8.15, 8.30, 9.00, 9.20, 10.30, 11.40 A. M., 12.00 M., 1.00, 2.00, 3.00, 3.30, 3.45, 4.15, 4.30, 4.45, 5.10, 5.25, 5.45, 6.00, 6.25, 7.00, 7.45, 8.00, 8.10, 9.00, 9.45, 10 45, 11.50 P. M.

Tickets for the West can be obtained at the office of the Central Railroad of New Jersey, foot of Liberty street, N. Y.; at No. 1 Astor House; Nos. 254, 271, 526 Broadway; at No. 10 Greenwich street, and at the principal hotels. R. E. RICKER, Superintendent.

H. P. BALDWIN, Gen. Pass. Agent.

RAILROADS.

MORRIS AND ESSEX RAILROAD.

—DELAWARE, LACKAWANNA AND WESTERN RAILROAD CO. (Lessees). Depots in New York, foot of Barclay street and foot of Christopher street.

Summer arrangements, commencing MONDAY, May 10, 1869.

8.00 A. M.—MAIL TRAIN.—Connecting at Denville with Boonton Branch, at Dover with Chester Branch, at Waterloo with the Sussex Railroad for Andover and Newton, at Washington with the D. L. and W. Railroad for Water Gap, Stroudsburg, Scranton, and Great Bend, and all points on the Lackawanna and Bloomsburg, and Delaware and Hudson River Railroad; at Easton with the Lehigh and Susquehanna Railroad for Bethlehem, Allentown, Mauch Chunk, and Wilkesbarre.

11.30 A. M.—LEHIGH VALLEY EXPRESS—Stops at Newark, Morristown, Dover, Hackettstown, Washington, Phillipsburg, and Easton; connects at Phillipsburg with Bel., Del. Railroad for Belvidere, &c., and at Easton with L. V. R. R. for Bethelehem, Allentown, Mauch Chunk, and Wilkesbarre.

4.00 P. M.—SCRANTON EXPRESS—Connects at Washington with the D. L. & W. R. R. for Water Gap, Stroudsburg, and Scranton at Dover with Chester Railroad, and at Waterloo with Sussex Railroad.

6.30 A. M. and 4.30 P. M.—To Summit and intermediate stations.

6.30, 7.30, 9,30 A. M., and 1 00, 3.40, 5.30, 8.45, 11.45 P. M.—To South Orange and intermediate stations.

11.40 A. M., 3.00 and 6.30 P. M.—To Morristown and intermediate stations.

5.10 P. M.—Morristown Express.

For Newark at 6.30, 7.30, 8.00, 8.30, 9.30, 10.30, 11.00, 11.30, 11.40, A. M., 1.00, 2.00, 3.00, 3.30, 3.40, 3.50, 4.00, 4.30, 5.00, 5.10, 6.10, 6.30, 7.45, 8.45, and 11.45 P. M.

For Bloomfield and Montclair—At 8 30, 11.00 A. M.; 2.00, 3.50, 5,00 and 6.10 P. M.

S. SCHOCH, Assistant Superintendent,
R. A. HENRY, G. P. Agent.

NEW JERSEY RAILROAD—For PHILADELPHIA.

Via Kensington, *6.30 p. m.; on Sundays, via West Philadelphia.

Via Camden, 1 p. m. and 4 p. m.

Via West Philadelphia, 7 a. m., 8.40 a. m., 10 a. m., 12.30 p. m., 5 p. m., *9 p. m., 9.20 p. m., and 12 night.

For Baltimore and Washington—8.40 a. m., 12.30 p. m., *9.26 p. m.

For South and Southwest—8.40 a. m., and *9.20 p. m.

FOR THE WEST.

8.40 a. m., 12.30 p. m., 5 p. m., *9 p. m., and *9.20 p. m. The 8.40 a. m., and *9 p. m. trains through, with but one change, to Cincinnati and Chicago.

Silver Palace Sleeping Cars attached to the 5 p. m. train run through to Cincinnati and Chicago without change, daily, (Saturdays and Sundays excepted); and on those days to the 9 p. m. train. This is the only line running through cars to Chicago by evening lines.

TICKET OFFICE FOOT OF CORTLANDT ST.

Tickets for sale in Reclining Chair cars can be obtained at foot of Courtland street and 944 Broadway.

May 10th, 1869. F. W. JACKSON,
*Daily. General Superintendent.

STEAMBOATS.

FOR BOSTON

VIA
FALL RIVER DIRECT.

The world-renowned steamers
BRISTOL AND PROVIDENCE,
Commander BRAYTON, Commander SIMMONS.
will leave (alternate days) DAILY
From Pier No. 30 North River,
foot of Chambers-st.,
AT FIVE P. M.
DODWORTH'S CELEBRATED ORCHESTRA.
GRAND PROMENADE CONCERT EVERY EVENING.

This is the only line running a
SUNDAY NIGHT BOAT.

To better accommodate the public the splendid steamers
NEWPORT AND OLD COLONY.
Commander LEWIS, Commander MILLER,
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BY CVANDO J. HOLLISTER.
LATE EDITOR AND PROPRIETOR OF
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The approaching completion of two lines of railway between the Mississippi Valley and the Rocky Mountains, will mark an era in the history of the nearer of the mining Territories—Colorado. It will infuse new life into mining, by giving safe, quick, and reliable communication, reducing freights and risks, thus cheapening supplies and furnishing a most necessary competition in the labor market, under which the production of the precious metals will be largely increased, and the value and importance of property of all kinds will be proportionally enhanced. This cannot fail to arrest the attention of capitalists who are interested in Colorado gold and silver stocks, or are thinking of becoming so. It will be of yet more benefit to that large class whose capital is their muscle, because it will make accessible to them a new and large tract of virgin land, which, though far West, is still on the World's great highway, and therefore in no sense of the word in the backwoods. This region has a pleasant and healthy climate, and while its soil is unsurpassed in strength by that of the prairie States, it has a superior market in the adjoning mines. It most eloquently invites settlement and improvement. It will also give the Summer tourist a choice between the West and the East. It is not hazarding much to say that the Rocky Mountains offer the most delightful Summer resort of the New if not of the Old World. The climate is cool and bracing, the air deliciously pure and soft, the scenery both grand and beautiful, the forests full of game and the streams of trout, with hot mineral springs of high medicinal value boiling up at the root of every shade tree in the sequestered parks. The annexation of the Rocky Mountains to the Union by railways will open a new world to science, a new field of adventure to money and muscle, a new and pleasant place of Summer resort to people of leisure.

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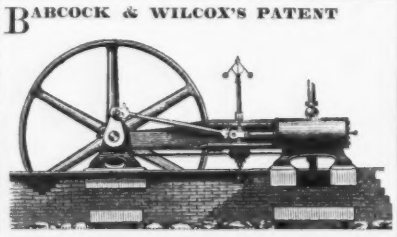

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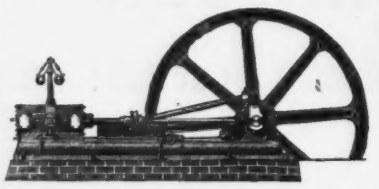

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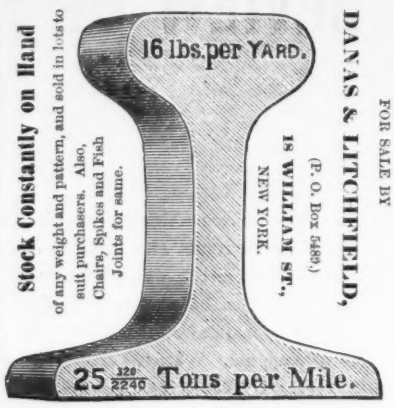
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